HYGEIA

Medical Library

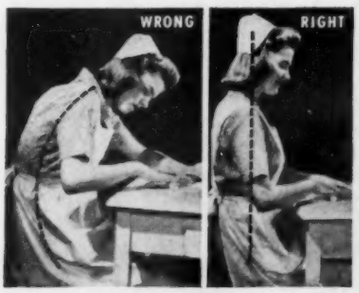
MAY • 1942 • 25c

The Health Magazine of the American Medical Association

POSTURE: Relative arrangement of the different parts, especially of the body; characteristic or assumed bearing...disposition of things involved; as to put a country into a POSTURE of defense. (WEBSTER)

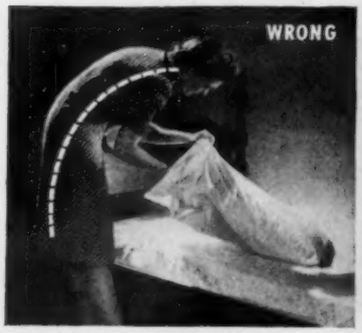
DROOPED SHOULDERS
THEY ADD YEARS TO YOUR APPEARANCE
BACKACHE
OFTEN TRACED TO SACRO-ILIAC, SPINAL OR MUSCULAR STRAIN
ACHING LEGS AND FEET
DUE TO BADLY DISTRIBUTED WEIGHT
HEAD FORWARD

THIS IS WHAT MIGHT HAPPEN if posture is neglected. Almost all the above symptoms cause *fatigue* through internal muscular strain . . . as well as loss of energy, efficiency. When you slump, you crowd the organs of the chest and abdomen downward, invite poor circulation, constipation, muscular strain and numerous other functional disorders—even more serious ills of which your physician is aware. Good posture habits encourage correct body balance, increase the feeling of well-being, give the figure a graceful appearance.



EXTRA HOURS spent in volunteer work can be made less exhausting by sitting straight, with lower back touching chair, shoulders back, chest expanded. It's tiring to slump.

LONG PERIODS of standing are easier to take when body is correctly balanced with shoulders back (but not stiff), chest high, abdomen in, toes ahead.



DAILY TASKS can build-you-up, not wear-you-down, if posture is correct. Make beds with weight on forward foot, knees relaxed, back straight.

. . . ITS PURPOSE: TO HELP PREPARE WOMEN FOR THEIR NEW ROLE IN WARTIME AMERICA

Today, most women feel it's a patriotic duty to keep fit! For you can't work longer hours, be on your feet more—if you're weak, sick, tired.

Camp National Posture Week—in which schools, colleges and good stores everywhere participate—emphasizes the importance of good posture to health and efficiency. For it is an undeniable fact that you can work *more* with *less* fatigue when you sit and stand correctly. If it's hard to maintain good posture, if you tire easily . . . you may need the help of a Camp Anatomical Support.

For more than 30 years, Camp Supports have been aiding men and women to stand, feel, work better. They're designed to help *correct* figure faults, not just fit over them. They relieve the internal pressure and strain that often lead to fatigue. Give you the "lift" that's so essential to a feeling of well-being.

This is the time to check up on your own posture. If you suspect that something serious is wrong, *consult your physician.* Or, if yours is a case of "simple" faulty posture, visit the Camp-trained fitter at your favorite store *now!*

S. H. CAMP & COMPANY, JACKSON, MICH.

World's largest manufacturers of scientific supports . . . Offices in New York; Chicago; Windsor, Ontario; London, England

CONSULT YOUR PHYSICIAN about abnormalities of posture and weight. He knows what diet and exercise to prescribe for your age and condition.

Medical
American Medical Assn
6-12-42

BABIES SUPERVISED BY PHYSICIANS ARE BETTER BABIES

Copyright 1942, Mead Johnson & Company, Evansville, Indiana, U. S. A.

43

FORECAST

At the end of the second month of pregnancy the entire human embryo is only about one inch in diameter—yet already the embryonic eye is definitely outlined and well on its way toward becoming a complete visual organ, serving one of the most important functions of human life. . . .

The prenatal development and anatomy of the human eye are discussed in simple, clearly understandable terms in the second of a series of articles on vision by John Oliver McReynolds, M.D., appearing in HYGEIA for June.

Prodded by fear, millions of Americans are scrubbing their teeth or rinsing their mouths out with antiseptic solutions in a frantic effort to protect themselves from the social isolation, failure and unhappiness attributed to bad breath. Worse yet, many are dosing themselves with harmful laxatives on the strength of the dangerous half truth that the intestines are the source of halitosis and that common intestinal disorders, such as constipation, may be responsible.

Recently reported medical investigations revealing the nature and source of true halitosis are reviewed in an article by Robert Maris, to be published in an early issue of HYGEIA.

At the end of the first year of World War I, the British Army found that of every 100 pilots that had been killed, two died as the result of enemy action, eight from defective equipment and ninety from physical defects in the pilots themselves! A thoroughgoing revision of physical standards resulted, and these standards have been continually improved in more recent years. The rigid schedules maintained for the physical conditioning of United States flyers today are described by James E. Pixlee and E. K. Gubin in a timely, interesting HYGEIA *article.*

Some time in every one's life, usually several times, a change occurs in the way he looks, feels and acts so that the first thought of all concerned is: "Get a doctor!" He will entrust the doctor he calls with the responsibility of restoring his health—possibly saving his life. The question then is: "How can I select a good doctor?" The standards by which a physician can be measured are furnished by the medical profession—the way to judge a doctor is the way doctors judge each other.

What these standards are and how they may be applied are explained for HYGEIA readers by Greer Williams in "How to Choose a Doctor." Coming soon.

HYGEIA

THE HEALTH MAGAZINE

535 N. DEARBORN ST., CHICAGO, ILL.

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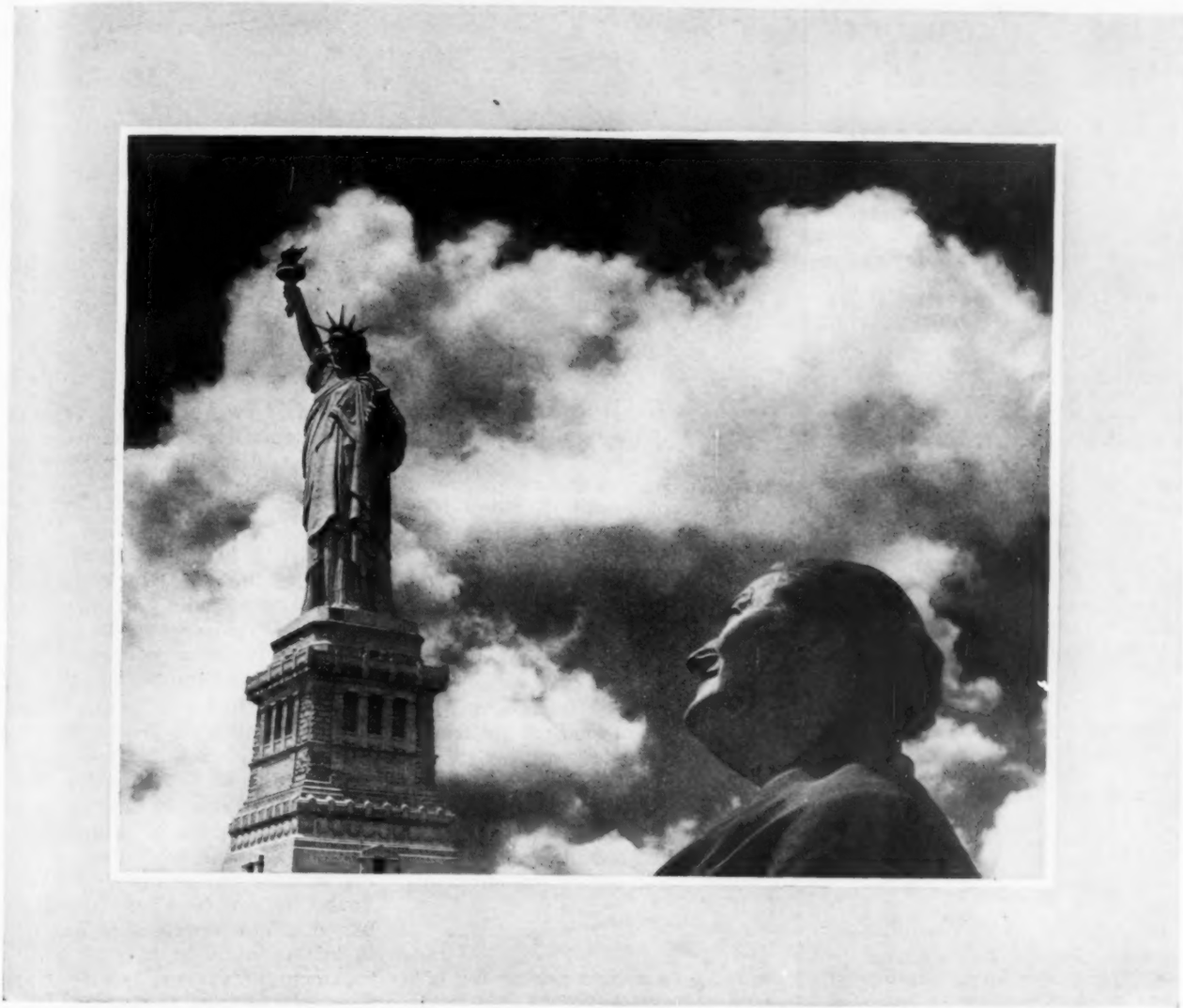

What can a man believe in?

To THE COMMUTER on a New York ferryboat it may be a landmark that one passes with head buried in newspaper . . .

To generations of school children it represents a steep climb with a wonderful view at the top . . .

To thousands of returning travelers it symbolizes "home."

What does the Statue of Liberty really mean?

If you want the true answer, go down to The Battery at the foot of Manhattan, overlooking New York harbor. Mingle with the crowd. Pick out a newcomer to these shores—preferably a wife and mother. Ask her your question.

Never mind if she speaks broken English. Watch her eyes for your answer. You will find it there—in her memory of the past and her hopes for the future. It is an answer you can believe in. It is America.

Every Squibb product—whether made especially for prescription by the medical profession or for proper everyday use in the home—bears an individual control number. It means that each detail in the product's making has been checked against Squibb's high standards and recorded under that number at the Squibb Laboratories. Look for the name and control number when you buy. You can believe in Squibb.

E·R·SQUIBB & SONS

Manufacturing Chemists to the Medical Profession Since 1858

THE PRICELESS INGREDIENT OF EVERY PRODUCT IS THE HONOR AND INTEGRITY OF ITS MAKER

Copr. 1941 by E. R. Squibb & Sons

"The Adcomber"

looks at Hygeia ads

Believe it or not, ECONOMY WITHOUT SACRIFICE can happen! Here's a tooth cleanser that costs so little . . . goes so far . . . leaves such a clean aftertaste . . . helps restore the natural color of teeth. (You'll find me in most kitchen cupboards—also on page 375.)

—◈—

Getting right down to MEAT and potatoes, here's a chart for your daily meals, based on U. S. Government's Guide to Good Nutrition . . . page 371. And don't overlook the "lesson in nutrition" offer, same page.

. . . "A very present help" in this "time of need," Mrs. Homemaker.

—◈—

Not just "another nursing bra." Modern Mother really meets the difficult requirements of motherhood before and after. Four tailored-to-circumstances styles. Page 380.

—◈—

"Everyone's war" calls for everyone's fitness . . . and fitness means food. . . . Are you fortifying yourself and your family daily with that more wholesome, delicious Enriched White Bread? Note the diet "essentials" it contains—page 367.

—◈—

Personal daintiness never goes out of season. Perspiration and underarm odor never come IN season. Here's a gentle but workable "checkmate" for those terrible teammates. AND a trial offer you ought not overlook . . . page 378.

—◈—

Can your beauty soap pass the Baby Test? Will it keep a brand new, sensitive skin in rose-petal condition? . . . And help it grow lovelier as the years go by? IVORY WILL! That's why it's good for grownup loveliness, too. See what the doctors say, page 329.

—◈—

Time was when every American's health was chiefly his own gain or loss. It's different now—for health losses must be repaired promptly to keep men and women at their jobs . . . Your doctor is the man to help you cut down your losses. SEE HIM EARLY. Page 325.

—◈—

"Mother's helper" indeed is li'l ol' Brer Rabbit Molasses. Saves SUGAR and gives youngsters that important EXTRA IRON. And do they "take it easy"? Just try the recipes on page 360 and see!

THE ADCOMBER

Who's Who IN HYGEIA

WILLIAM C. DANFORTH, M.D., who gives us inside information on impetigo in "Spots on the Baby," page 332, is professor of obstetrics and gynecology at Northwestern University Medical School and chief of this department at the Evanston (Ill.) Hospital. He is president of the American Gynecological Society, past president of the Chicago Gynecological Society and a member of the board of governors of the Institute of Medicine of Chicago. Author of medical books and numerous articles appearing in various professional journals, Dr. Danforth has also written several articles on obstetrics for lay magazines and has recently published a popular book called "A Woman's Health."

Replying to a note asking for biographic data, PHOEBE M. WALTERS writes as follows: "When my daughter Joan, second of five children, was in the fifth grade she was asked to give a biographical sketch of each of her parents. After a lengthy discussion of her father's many accomplishments she turned to those of her mother and said: 'Mother graduated from Wellesley College in 1920. Then she married Father, and she hasn't done a thing since.' I guess that just about covers me!" For the record, Joan's father is Dr. Waltman Walters, a surgeon on the staff of the Mayo Clinic in Rochester, Minn. Mrs. Walters is the author of "Are You Going to Die of Cancer?" on page 352 of this issue of HYGEIA.

BRET RATNER, M.D., is clinical professor of children's diseases at the New York University College of Medicine and a member of the attending staff in the children's divisions of the Bellevue and French hospitals, New York City. Years of experimentation are condensed for HYGEIA readers in "The Story of Allergy," on page 334.

GEORGE M. LOTT, M.D., who presents the first of two child care articles on "Feeding Problems" in this issue (page 384), is director of the newly organized mental hygiene division of the Suffolk County, N. Y., Department of Health. Since he was graduated from the University of Colorado Medical School in 1928, Dr. Lott has held a number of positions in the fields of psychiatry and child guidance, including a term as Fellow at the Institute for Child Guidance in New York City and four years as Rhode Island State Psychiatrist—serving in this capacity as a consultant to the courts, various social work bureaus and state institutions. Under his supervision, the mental hygiene division of the Suffolk County Department of Health is working chiefly with youngsters in the formative years in the belief that prevention and early correction of difficulties is the most effective public health approach to problems of mental hygiene.

Married to a newspaperman with a literary bent, DOROTHY HALLER says it was inevitable that she should become a free-lance writer. Her particular interests have been public health, population, vital statistics and—at the moment—the status of women workers in war industries. Thus "The Nurse in Industry," on page 340. Mrs. Haller studied at Barnard College and Columbia University and did research work for the Carnegie Foundation in New York City before moving to Chicago, where she lives now.

The little black bag that will help win the war

TODAY, in every community, this little black bag assumes a new importance.

It symbolizes a man who goes quietly about his daily task, maintaining the health of the people on the home front.

A new and heavier responsibility than ever before rests upon the physician's shoulders now. For public morale and maximum war production go hand in hand with health.

Every illness that causes layoffs is a saboteur. Every hour lost through sickness slows down the flow of tanks and planes and guns, and everything else we need so quickly and in such vast quantities if we are to win this war.

Nowadays, too, the doctor feels a special responsibility and obligation in helping those not actually engaged in war production—people who are serving their country by putting extra energy into their everyday jobs. Moreover, many of these people have taken on extra duties—wartime tasks that make heavy demands on their strength and stamina.

Like his colleagues now serving with the armed forces, the doctor on the home front is guarding the manpower needed to win the war for America.

But he cannot be expected to do the job singlehanded. There is an obligation that extends to every patriotic American today. That obligation is to do everything you can to keep *well*—to keep fit, for the tasks ahead.

• • •

So don't wait until you are seriously ill before you see your doctor. The sooner you see him, the better your chances for a speedy recovery.

To keep working—
you must keep well—
SEE YOUR DOCTOR

PARKE, DAVIS & COMPANY, *DETROIT, MICHIGAN*

★ BUY DEFENSE STAMPS AND BONDS ★

Copyright, 1942, Parke, Davis & Co.

Maybe that maddening tickle . . .

is caused by nothing more nor less than some irritating substance in your cosmetics. Maybe it's *NOT* one of your "usual spring colds." Before you let it bedevil you any longer, better treat yourself to a careful trial of cosmetics blended expressly for allergic persons and—give your sneezes a chance to subside!

Marcelle hypo-allergenic Cosmetics are safe for sensitive skins . . . a wise choice for the allergic. For from these expertly formulated creams and powders, all the irritating allergens and "tickle-starters" known to the makers have been omitted.

Too . . . Marcelle hypo-allergenic Cosmetics are recognized and prescribed by doctors the country over. They'll be a blessing to your skin . . . harmless even if you're allergic . . . and truly lovely in the bargain.

By using the coupon below, you can get a *long* week's supply of five Marcelle hypo-allergenic beauty aids for JUST TEN CENTS: Marcelle hypo-allergenic Cleansing Cold Cream, Skin Lubricating Cream, Face Powder, Rouge and Lipstick.

"Humbly suggest" you get that dime off right now . . . Wouldn't it be wonderful to see those sneezes "gone with the" spring breezes?

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1741 N. Western Ave., Chicago, Ill.

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Blonde.... Brunette.... Auburn....

NAME.....H-5-42

ADDRESS.....

LETTERS FROM *Readers*

First Aid Quiz

To the Editor:

Just received March issue containing questions and answers regarding first aid treatment and care. I think the article is very timely and will be of interest to your readers.

LUCILLE GREENFIELD

Columbus, O.

To the Editor:

The first aid quiz is timely and helpful . . . readable and understandable. I shall recommend it to my friends as worth while and practical.

W. C. IKENBERRY

Roanoke, Va.

To the Editor:

We are Red Cross First Aid Instructors and found your article and first aid quiz very interesting . . . in fact, we would like to have your permission to use it as a written quiz in class.

COLTON AND YERZLEY

Newark, N. J.

To the Editor:

. . . article on first aid is tops! Hope you will have many more on this subject—grand tests for my first aid classes!

MAY FLEMING, R.N.

Winchester, Mass.

Dividend

To the Editor:

I presume that in the regular course of your publication you seldom learn of the good you do mankind. In our home we have such cause to be grateful for the information given in HYGEIA that I am prompted to write you.

A few weeks ago I sent you a check for a subscription. The first issue we received contained an article on glaucoma. Through the information contained in this article Mrs. Gander hurried to a specialist who operated, relieving the pressure in the eye, and the sight was saved . . . I want you to know that we appreciate more than words can tell the dividends we received on the little investment in HYGEIA.

FRANK GANDER

Sparta, Wis.

Photographer's Angle

To the Editor:

In the picture of a child being given a Schick test on page 171 of the March issue, the technic is entirely wrong as the needle should be injected almost parallel to the skin and this is being given at right angles as one would a dose of toxoid or any other hypodermic.

PAUL C. CARSON, M.D.

Wichita, Kan.

Photographers do peculiar things.—ED.

Compulsory Vaccination

To the Editor:

The article "Protect Against Smallpox" by David Dietz (March HYGEIA) says that vaccination in New Jersey is compulsory. Vaccination in New Jersey is not compulsory but is advisable. . . .

ETHELBERT W. SMITH

Belvidere, N. J.

Actually, the New Jersey law provides that local Boards of Education may make vaccination compulsory for school attendance. Thus in many communities effective compulsory vaccination for children exists.—ED.

Brother in Brazil

To the Editor:

We are much indebted to you for the privilege given to the periodical "Pais e Filhos" to quote or translate from your magazine. It is a real

Visibility Limited . . .

Every schoolboy knows that you can't fly very high when the airport weatherman reports "Visibility Limited." Nobody expects you to . . . because it's dangerous to fly when you can't see.

But few children ever suspect that their own vision is limited . . . that the reason they may have poor marks in school or feel "out of it" at play is that they cannot see clearly. They *think* their eyesight is normal because they have had no experience to guide them, no way of knowing.

Don't take chances on your child's eyesight. Learn the truth by having his eyes examined! Make such examinations a regular part of his health routine . . . for only through competent examination can you be sure you are giving him the priceless advantage of normal vision.

And that is one of the most important things you can do to help him be successful in school and in later life!

WHAT ARE SOFT-LITE LENSES

Soft-Lite Lenses are scientifically designed to control the amount of light which reaches the eye, without altering color or visual sharpness. They neutralize glare, absorb excess light, protect eyes against eye-strain and fatigue. Soft-Lite Lenses are flesh-toned and are ground to individual prescriptions. They are prescribed for children as well as adults.

There is only one Soft-Lite—identified by this certificate.

Soft-Lite Lenses

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DURA-GLOSS
nail polish contains
Chrystallyne

What causes the exceptional brilliance, the luster and *life* of Dura-Gloss nail polish? A special resin-ingredient—Chrystallyne! It is this wonder-ingredient that gives Dura-Gloss its shimmering highlights, makes it *stay on* amazingly. For nails that sparkle like jewels, start wearing Dura-Gloss nail polish today!

FREE BOOKLET

"Your Fingernails and their Care"

Explains why nails split, become brittle, have white spots. Complete with charts showing how to file fingernails to suit each type hand, how to key nail polish shades to your clothes. Pictures each step in the manicure plus detailed instructions. Send for this booklet *now*. Write Dept. H5, Lorr Laboratories, 200 Godwin Avenue, Paterson, N. J.

DURA-GLOSS
for the most beautiful fingernails in the world

10¢ PLUS TAX

NEW COLORS FOR NOW!
Blackberry, Mulberry
Wineberry

LORR LABORATORIES, Paterson, N. J.
Founded by E. T. Reynolds

fortune to count on excellent material like yours.

We believe that our magazine, whose first issue was out on March 1, may be of real help to the country, contributing toward standards of family life.

THOMAZ S. NEWLANDS NETO
Rio de Janeiro, Brazil

Hospitalization Insurance

To the Editor:

We thought so much of the article "Hospitalization Insurance" by C. E. Nyberg (March HYGEIA) that we recommended it to our readers in our "Worth Reading" column.

HAROLD R. COLBERT
Life Insurance Selling
St. Louis, Mo.

Misleading Legend

To the Editor:

Your legend for the picture at the bottom of page 180 in the March issue is misleading: hospitals are *not* "control centers for the entire community." The legend should have read: "Coordination of disaster activities in the hospital will be centered in this group. . . ."

JAMES A. HAMILTON
New Haven Hospital
New Haven, Conn.

Aid to the Aides

To the Editor:

I have just started instruction under the American Red Cross to teach a Nurses' Aide course at the local hospital.

The class has been asked to subscribe to HYGEIA. I find it very useful as a classroom tool and excellent for reference material for mixed groups. Although I am a comparatively new subscriber I enjoy the articles and at the present time am arranging a filing system according to subject matter for all the articles I have cut out and segregated.

MRS. MELVA SMITH SURMANN
Bound Brook, N. J.

Hygeia Goes to College

To the Editor:

I am ordering subscriptions for HYGEIA away beyond those called for by the size of our Hygiene Class.

What do we do with the other HYGEIAS? With the definite conviction that this is the most reliable source of health information, edited in scholarly but humanly interesting and understandable form, we make it available in the library, in waiting rooms, lounges, etc. Now I am thinking of putting copies in student dormitories, club houses and even in the downtown hotel and barber shops.

E. K. BRYANT
Muskingum College
New Concord, Ohio

For Future Use

To the Editor:

When I graduated from high school last February, I received as a gift a subscription to HYGEIA. I find this the most interesting magazine that I have ever read.

I am going to study medical social work at the University of Pittsburgh and am saving each issue for further reference during my course.

LOUISE MELNICK
Pittsburgh, Pa.

Reprints in South Africa

To the Editor:

The reprints from HYGEIA have reached us safely and I wish to thank you for them.

We subscribe to HYGEIA for the Departmental library, but I am particularly glad to have this material in a form which can be passed on to interested people. Not only does it abound in valuable information but it is a useful example of the educational material on foods available to the American public.

MARGUERITE MALHERBE
Department of Public Health
Pretoria, Union of South Africa

"Sold Completely"

To the Editor:

I happened to see a copy of HYGEIA on a table in a beauty shop. I went to every newsstand in town and could not obtain one. It is the best magazine of its kind I ever saw. The March issue of 1942 sold me completely on a year's subscription. Would it be possible to send me the January, February and March issues—to start my subscription in January 1942?

I never saw so much good common sense and information, including advertising and everything, between two covers.

ZINA H. EAGER
Mitchell, S. D.

"You're going to be a Beauty!"

said Doctor, advising IVORY

1 SO BIG! ME AT 10 MONTHS . . .

wearing a rose-petal complexion, if I *do* say so myself. 'Course, Doctor *insisted* on Ivory for my sensitive skin—and Mommy's, too. He explained how Ivory Soap is *pure* and *gentle*, without any dye or strong perfume that might be irritating.

2 BIGGER YET— 18 MONTHS OLD

Ah me . . . the good times I've had in my Ivory bath! How could they *ever* make a soap any milder, any sudsier than this scrumptious big white floating Ivory cake of mine?

3 PRACTIC'LY GROWN UP—

2½ years next week! And guess what . . . they've actually made a *milder* Ivory (with LOTS more SUDS) for Mommy's complexion and mine! Mommy says our New "Velvet-suds" Ivory gives us *safe* beauty-care. You oughta see her cream New Ivory lather all over her face! And afterwards she looks so pink-and-white! Better be like me and Mommy—give *your* face a velvet sudsing every night!

P. S. In a nation-wide survey, more doctors said they recommended Ivory for both babies and grown-ups than any other toilet soap. And doctors now recommend *New* Ivory—which is even *milder!*

99⁴⁴/₁₀₀% PURE
IT FLOATS

TRADEMARK REG. U. S. PAT. OFF.
PROCTER & GAMBLE

"Baby-care" is Beauty-care . . . use

New Velvet-suds IVORY

Fundamental in any program of good health, cleanliness is absolutely essential in the hospital. Physicians, nurses and attendants coming in contact with patients must be scrupulously careful to minimize the possibility of infection through bacteria carried on the person or the clothing. Especial care is needed in the operating room and the nursery, where the "scrubbing up" ritual is performed dozens of times daily.

Those who work in the nation's hospitals will be honored this month in the annual observance of National Hospital Day on May 12. On that day, hospitals throughout the country will hold "open house" for visitors who will make tours of inspection, listen to lectures and watch demonstrations presented by hospital workers in all departments. Improved public understanding of hospitals and their staffs is the objective sought through this annual occasion.

CLEANLINESS

FUNDAMENTAL among all the hygienic precepts is the encouragement to cleanliness. Precepts for fundamental hygienic procedures, including rest, cleanliness and moderation, go back to ancient times. "Cleanliness of body was ever deemed to proceed from a due reverence to God," says the "Advancement of Learning." "Cleanliness is, indeed, next to Godliness," affirmed John Wesley. Yet modern science has taught us facts about cleanliness which were never known to the people of Biblical days. There is a great difference between the removal of visible dirt and the removal of contagion. Disease is transferred from one person to another by the passage of germs or infectious agents.

Cleanliness is largely a matter of habit. It demands untiring vigilance—the kind of vigilance that must become habitual. These habits include:

1. Frequent use of soap and water baths.

2. The washing of the hands in soap and water after attending to any physiologic need; and also before eating.

3. The keeping of hands and of unclean articles, particularly toilet accessories that may have been used by other persons, away from the mouth, nose, eyes, ears, or other body openings.

4. The avoidance of the common drinking cup or toilet articles, hair brushes or pipes.

5. The avoidance of close contact with persons who are coughing or sneezing and thereby spraying infectious materials from the nose and mouth.

In the development of personal hygiene emphasis on soap and water is essential. Water is the greatest cleansing agent known to man. The advantage of soap is its ability to dissolve a material that has to be dissolved in order to be removed. Soap also may contain enough alkaline materials to destroy germs.

Cleanliness involves not only personal cleanliness of the human body but also cleanliness of the environment. When dishes are washed by the use of machines which require boiling water and the use of thick soap solutions, the control of this source of contamination is definite.

The towel is another accessory to modern life. Nowadays we know the danger of the roller towel or the towel that is used by all the members of the household. Experiments actually made with towels indicate that a hot towel will remove vast numbers of germs from the skin and that a Turkish towel will remove three times as many as a huck towel. Repeated use of the same towel for days brings about an accumulation of germs on the towel and indicates that it can be a source of germs as well as a means of removing them.

Cleanliness should not be permitted to become a fetish. It is quite possible to become so conscious of germs and of uncleanliness that concentration on that phase of life and living becomes in itself a source of mental ill health. However, good habits of hygiene taught in youth, including regular washing of the hands and face, complete bathing of the body at frequent intervals and sanitation of the environment are the basis of health, comfort and satisfaction throughout life.

A DISTINGUISHED GROUP of specialists was being shown through a magnificent new maternity hospital. The host—chief of staff at the hospital and professor of obstetrics and gynecology at the affiliated university's medical school—was in the act of explaining the many innovations in the hospital nursery when one of the visiting obstetricians jokingly asked if they ever expected to have a case of impetigo in such beautifully aseptic surroundings. "My heavens!" the host exclaimed. "We have it now!"

It is widely believed that the presence of impetigo, a disease in which small red spots appear on the baby's body, indicates carelessness on the part of physicians or nurses on the hospital staff. This is not true. Impetigo is caused by a bacterium—the staphylococcus—which is found in the skin and body orifices *all the time!* The surgeon who "scrubs up" before an operation is trying to rid his skin of these staphylococci; he can't wash them all away, but experience shows that infections rarely

SPOTS on the BABY!

By WILLIAM C. DANFORTH

Care of babies in hospital nurseries is governed by rigid asepsis at all times. When an eruption of impetigo appears—and an occasional case is impossible to prevent—the baby is placed in isolation, and every precaution is taken to prevent these eruptions from spreading

follow operations done in areas free from infection when the operation began.

When an eruption of impetigo appears on a newborn baby it usually comes soon after birth—in fact, many babies are born with the spots already on their bodies! In such instances, staphylococci circulating in the mother's blood have passed through the placenta into the circulation of the baby, attacking the baby's skin before birth. It is known that bacteria can pass through the placenta from the mother's into the baby's circulation, because babies have been born with the rash of measles or smallpox—when the mothers were suffering from those diseases. It has also been known for years that the organism which causes syphilis may pass from the mother to the infant. Thus when staphylococci enter the bloodstream of the baby from that of the mother they are doing what a number of other germs are demonstrably able to do.

Actually, it is impossible for a baby to pass from the interior of the uterus to the outer world without being in contact with bacteria. The birth canal itself always contains a number of different bacteria. Attempts to render the birth canal entirely bacteria-free through use of chemical antiseptics are often dangerous; experience has shown that for the safety of the mother it is wiser to rely on the natural resistance of the mother's organism. Hence the infant is exposed for a time to contact with bacteria—the staphylococcus among others—even during the most normal and smoothly progressing labors. The possibility of infection is always present, and the possibility of impetigo in the baby is as great when birth occurs at home as it is in hospital deliveries. The most elaborately equipped hospital in the world can hardly be expected to prevent women who harbor staphylococci from having babies—or from coming to the hospital to have them! An occasional case of impetigo is bound to occur, no matter what precautions are taken, and this is in no way the fault of the attending physicians, or the fault of the nurses, or the fault of the hospital. Since so many cases of impetigo are acquired from the mother herself, no effective prevention is possible short of stopping the process of reproduction—and this has its disadvantages!

The instant a spot of impetigo is found on the body of a baby in the hospital nursery, the baby is taken away from the other infants and placed in isolation. Since the disease is highly contagious, every precaution is taken to prevent its spread to other infants in the nursery. The fact that an infection may occasionally spread among babies in the hospital nursery is by no *(Continued on page 387)*

The Story of

By BRET RATNER

WHEN A NORMAL person inhales pollen circulating in the air in the spring, early summer or fall of the year, nothing much happens. But if he is allergic to the pollen he may sneeze, have itchy eyes or develop a profuse watery discharge in his nose and eyes—in other words, he is manifesting the symptoms of hay fever. The tissues of the allergic person's nose and eyes react in a manner which differs from the reaction of normal tissue to contact with the foreign substance which in this instance is pollen. This altered reactivity of certain tissues of the body to contact with foreign substances is called "allergy."

The term was coined by Von Pirquet, the late Viennese pediatrician, whose name you will perhaps more readily associate with the test for tuberculosis, the tuberculin test. The term allergy is derived from two Greek roots, "alos" (altered) and "ergeia" (reaction). At the beginning of the twentieth century, serum, in the form of diphtheria antitoxin, was just beginning to be used. Practically all children who received such antitoxin developed, after a week or so, a condition to which Von Pirquet gave the name "serum krankheit," now known as serum disease. The symptoms presented were hives—technically known as urticaria (swellings under the skin), rise in temperature and certain blood changes. The condition lasted for a few days and in most instances passed off without untoward results. However, Von Pirquet noted that when repeated injections were administered to these same children at subsequent times, some of them also developed asthmatic seizures which came on precipitously within a short interval after the injection. He realized that he was dealing with a new entity; somehow these children were changed by their first injection, and they reacted in an altered manner to subsequent injections.

Because the term which Von Pirquet coined, "allergy," has been popularized, I have cited his work first. But a few years before, in 1902, a French physiologist, Charles Richet, made a remarkable observation. He was experimenting on dogs with an extract of certain sea fauna. He injected the extract into one particular dog whose name, Neptune, has since become famous. Neptune was unaffected by the first injection, and Professor Richet then went off on a holiday. On his return, some sixteen days later, he again inoculated Neptune with the same extract. To his amazement, the dog rapidly went into shock, had a hemorrhage from the bowel, vomited copiously and died within a few minutes. Many animals had been inoculated prior to this, but never before had such a thing happened. He retraced his steps and came to the realization that he had fallen on the discovery of a previously unsuspected biologic phenomenon, namely, that an animal inoculated with an otherwise harmless substance is changed somehow in his reaction to a subsequent injection of this same substance. Richet called this phenomenon anaphylaxis, deriving the term from the Greek "ana" (without) and "phylaxis" (protection). It is the antithesis of prophylaxis.

People who have allergy manifest their symptoms in one or more of several ways. They may have hay fever, which produces symptoms referable to the nose and eyes. They may have asthma, which presents symptoms of suffocation due to a spasm of the muscles surrounding the air tubes or small bronchi. They may have eczema, a chronic skin condition which presents a great variety

ALLERGY

Ferdinand S. Hirsh

of lesions, or urticaria, more commonly known as hives. A variety of gastrointestinal disturbances may result from hypersensitiveness —vomiting, mucous colitis, acute colic and symptoms which are sometimes wrongly diagnosed as appendicitis. Even migraine and temporary paralysis and blindness have been attributed to this malady.

It may seem strange that such a wide variety of conditions should be included under the one disease entity, allergy. The explanation is rather simple, perhaps too simple to be complete, but our knowledge has not progressed beyond this point. The tissues which appear to become sensitized are the smooth muscle cells which make up the involuntary muscle found in the lung tubes, in the blood vessels of the skin, in the mucous membranes of the nose and eyes and in the intestinal tract. The symptoms a patient presents, therefore, will depend on the smooth muscle or tissue sensitized. If it is those of the lung tubes, the patient will have asthma. If it is those of the skin, the patient may have eczema or urticaria. If it is those of the mucous membranes of the nose and eyes, hay fever may result. If the vessel to the optic nerve becomes spastic and edema results with pressure on the optic nerve, the patient may be temporarily blinded. Furthermore, a patient may suffer from one or many forms of allergy.

SUSCEPTIBILITY IS INHERITABLE

Is every one subject to such sensitization, or do only certain persons become sensitized? These questions cannot be answered definitely.

A vast amount of work has been done, but we are still in the realm of speculation. Certain investigators believe that heredity plays a major role. It is granted that human beings possess certain constitutional characteristics which may play a role in the ease with which allergy is acquired, but so far, these characteristics are not known. Children without any family history may develop allergy, and parents suffering from allergy may produce normal offspring. In a certain small percentage of families, it is found that a large number of persons are afflicted, and it is because of such families that the impression is gained that allergy is inherited. It has been granted that while a particular allergic manifestation is not heritable, the capacity to become sensitized is. The child of an asthmatic parent does not necessarily have asthma, but he may have hay fever or eczema.

The belief has been expressed that allergy is acquired in much the same way as infectious diseases. There may be certain constitutional factors which make one person more susceptible than another. There are, moreover, conditions which render tissues more susceptible to the invasion of and sensitization to foreign proteins. It is known that membranes are highly permeable in early infancy; this is a period when the organism is being introduced to all new foods and other environmental substances. Another period of danger is during convalescence from disease. During holiday seasons, when people are prone to overeat and suffer from indigestion, the foundation for future allergic manifestations may be laid.

It has been estimated that about 10 per cent of the population have one or another form of fixed allergy. About 50 per cent suffer from minor allergy, that is, they may find that certain foods or environmental substances cause them discomfort but do not produce the disease conditions generally included under allergy.

With relation to the causative factors, it is generally stated that any protein substance, whether it be of animal or vegetable origin, may cause allergy. Thus inhaled substances, such as pollens or dandruff from animals, may be responsible for hay fever and asthma. Feathers, wool, silk, cotton dust, face powder and many other substances have been indicated as malefactors in allergic manifestations. Any food that one eats may cause allergy, but those most frequently noted are egg, wheat, milk, fish, nuts, berries, chocolate and shell fish. Recently, aspirin, sulfanilamide, quinine and other drugs were shown to be responsible for severe asthma and skin eruptions. Serum and glandular injections have been known to produce all the above symptoms, and, at times, people have died in anaphylaxis as a result of such injections. Finally, substances inside the body, such as bacteria in various foci of infection, are known to be incriminatory.

Allergy may start at any period of life. The majority of patients appear to show some manifestations during childhood. Eczema is the form which is seen earliest, but asthma later becomes the prevailing condition.

How is allergy diagnosed? First, through careful history taking. A person who sneezes in the middle of August year after year is undoubtedly a hay fever sufferer—usually from ragweed. If he sneezes in the spring, the affection may be due to tree pollens, and if it occurs in June, the offender is most likely grasses.

TRIAL AND ERROR

A child who vomits egg frequently, or a patient who gets an attack of asthma when in contact with animals, presents no difficulty in diagnosis. The nature of the offender, however, is often multiple, and at times obscure. Were it not for the protein skin tests, the specific diagnosis would be almost impossible to determine except by prolonged trial and error methods. These tests, it must be remembered, are not infallible and occasionally offer little or no help. A great deal of experience and much detective work is necessary before a condition is properly diagnosed.

Psychogenic factors must be considered in the analysis and diagnosis of allergic cases. One hears of the person who gets an attack of hay fever from smelling an artificial rose, or a violent asthmatic seizure from passing a wooden horse. Such a sequence in an allergic person may often be laid at the door of the "conditioned reflex"—an established neurologic pattern.

The treatment is at times as dramatic as the disease itself, and quite often a child who is sensitaive to a feather pillow or an animal pet will be free of all symptoms through the simple expedient of removing the offending substance. A case in point is that of a boy who suffered from asthma who was found to be sensitive to cotton linters (furniture, pillow and mattress stuffing). When the furniture in his house contain- *(Continued on page 392)*

Emergency Medical Services in Civilian Defense

THE THOROUGHNESS with which emergency medical services of civilian defense are preparing to furnish prompt and competent care in event of disaster affecting the civilian population is shown in the chart on the following pages.

Such terms as "control center," "medical field unit," "casualty station" and "stretcher team" are familiar to the American public only to the extent that they have appeared in reports of disasters occurring thousands of miles away. The average reader will be surprised to learn that these words today describe specific places, persons and responsibilities right in his own community.

The *control center*, for example, is headquarters for civilian defense activity throughout the community in time of disaster. It serves as a dispatch center for the emergency medical services, directing the personnel of these units to the scenes where their services are needed.

The *medical field units*, organized in general hospitals, are made up of squads consisting of teams of physicians, nurses and trained volunteer workers. Each hospital has at least two such squads, so that one unit may be on call during each twelve hour period of the day.

The *casualty station* occupies a predetermined site, such as the clinic of a hospital, health department or volunteer agency, a health center, school basement or other location that provides shelter, protection and accessibility. The station serves as a center from which medical teams may be sent directly to the scene of disaster as needed, cares for minor casualties to relieve the burden on permanent hospitals and keeps records of all the injured.

First aid posts are set up at temporary locations near the scene of disaster by the medical field units. First aid posts will give temporary care to the severely injured preparatory to their removal to a hospital and direct ambulatory patients and slightly injured stretcher patients—as well as those suffering from nervous shock or hysteria—to the casualty station. A most important function of the first aid post is the classification of the injured to expedite the transfer to hospitals of those whose condition is serious. Requiring competent surgical judgment, this function is essential to best results in terms of lives saved and disabilities prevented.

The *stretcher team* is a group of four or more volunteer workers trained in first aid and stretcher bearing who work under the supervision of the medical field unit bringing the injured from the scene of disaster into the first aid post.

Equipment and working supplies are maintained in hospitals so that casualty stations and first aid posts may be set in operation in the shortest possible time after a disaster affecting the civilian population is reported. While members of the field personnel are called on to perform only duties with which they are thoroughly familiar as physicians, nurses and trained volunteers, field drills are being held as nearly as possible under disaster conditions so that the work of the various units may be well integrated.

OPERATION OF

1

AMBULANCES

MEDICAL TEAMS

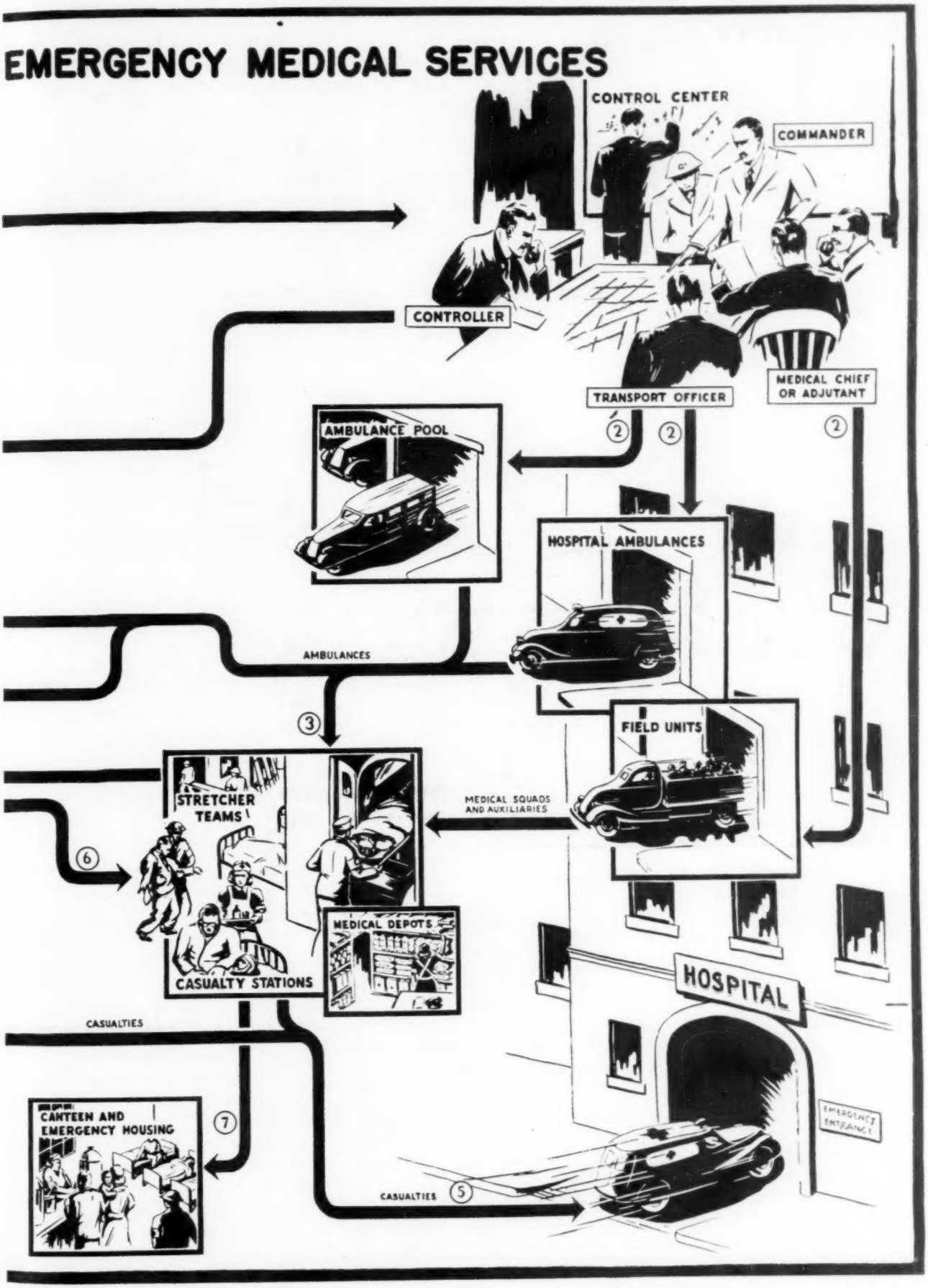
3

MEDICAL TEAMS AND AUXILIARIES

4

CASUALTIES

1. The WARDEN reports on casualties at the incident.
2. The CONTROL CENTER orders the MEDICAL FIELD UNIT of the hospital to the CASUALTY STATION nearest the incident.
3. The CASUALTY STATION, if close to the incident, serves as FIRST AID POST—otherwise, MEDICAL TEAMS headed by doctors are sent forward to set up advanced FIRST AID POSTS to which ambulances can approach.
4. STRETCHER TEAMS carry the injured to the FIRST AID POST from which they are transported to
5. The CASUALTY RECEIVING HOSPITAL as soon as possible. The slightly injured go to
6. The CASUALTY STATION for temporary care until they can return home or go to temporary shelters. At or near the CASUALTY STATION are
7. A MEDICAL SUPPLY DEPOT and a CANTEEN SERVICE STATION.
8. From the CASUALTY RECEIVING HOSPITAL, the injured can later be evacuated to an EMERGENCY BASE HOSPITAL in a safe rural area.


EMERGENCY MEDICAL SERVICES
CONTROL CENTER
COMMANDER
CONTROLLER
TRANSPORT OFFICER
MEDICAL CHIEF OR ADJUTANT
AMBULANCE POOL
HOSPITAL AMBULANCES
AMBULANCES
FIELD UNITS
MEDICAL SQUADS AND AUXILIARIES
STRETCHER TEAMS
MEDICAL DEPOTS
CASUALTY STATIONS
HOSPITAL
CASUALTIES
CANTEEN AND EMERGENCY HOUSING
EMERGENCY ENTRANCE
CASUALTIES
2
2
2
3
6
7
5

By DOROTHY HALLER

The Nurse in Industry

Emphasis on efficiency and safety in wartime production has brought the industrial nurse into prominence as an indispensable agency of management in American industry

CRISP, WHITE UNIFORMS are becoming more and more familiar in American factories and industrial plants. For nurses, the industrial field offers new vocational opportunities, not only because of the current emphasis on wartime production and accompanying safety programs, but because executives are realizing that the industrial nurse is an indispensable link in the chain of efficient management. The widening out of the field of industrial nursing is not just a temporary one "for the emergency." It is the basis of a broader, permanent opening for the nursing profession.

"The industrial nurse is assuming a position of great importance in America's business scene," according to Dr. Malcolm T. MacEachern, associate director of the American College of Surgeons.

"The trend in industrial medicine," he added, "is toward prevention insofar as possible. This trend establishes the industrial nurse in a more firm position than she otherwise would have if her activities were confined to minor first aid and helping the physician treat injuries.

"That remains one of her most important functions, but she also cooperates with the doctor in conservation of health of employees, with the safety engineer in minimizing hazards of the plant and teaching safe practices, and with the industrial relations department in improving employee morale."

Executives are coming more and more to accept industrial nursing as an economical safeguard against losses of time resulting from accidents, illness or minor mishaps.

For nurses, the industrial field offers new opportunities combined with a reliable source of income and favorable working conditions. Salaries are comparatively high, dependent on whether the nurse is engaged primarily for treating injuries and for first aid or whether she is part of a larger industrial relations program. In any case, she usually works an eight hour day, with an hour out for lunch. She takes on the working conditions of a secretary or an office worker, arriving at nine and leaving at five. There is a regularity about her hours which allows her to plan her social life with some certainty.

In addition, there is a professional satisfaction not only in aiding in treatment of factory workers, but in the advocacy of such preventive measures as sanitation, recreation and health education. This latter phase of the work appeals especially to nurses who have special interest in preventive medicine. The nurse is working with well people with a positive plan of improvement in mind. It is a field where initiative and tact are required—initiative to plan and carry through programs successfully and tact to bring administrative officers and labor into cooperation.

Dr. Paul A. Brehm, supervisor of the Industrial Hygiene division of the Wisconsin State Board of Health, said, "One of the great contributions the nurse can make is in selling management the fact that absenteeism can be reduced through a well planned and conducted program." He added that "occasionally the nurse can learn facts about outside influences, home conditions and habits without meddling into personal affairs." *(Continued on page 370)*

Nurse cleaning a minor cut in the first aid room of the medical department of a large industrial plant. In addition to first aid and other nursing duties, the industrial nurse may be engaged in a wide variety of related activities, such as safety education, hygiene, nutrition and the improvement of working conditions.

PEARL HARBOR

A Victory for Navy Doctors

By S. R. WINTERS

ONE OF THE most glorious chapters in American medical history was written at Pearl Harbor on December 7. When the wily planes of Nippon dropped their last bomb and winged away over the horizon they left in their wake 960 casualties—in many cases terribly burned and wounded men. How a small group of doctors and volunteer nurses cared for all these casualties in only sixteen hours—at the rate of a man a minute—is a sensational victory for our soldiers who fight disease and repair human bodies.

Unspeakably horrible though the disaster was, its tragedy would have been multiplied and its casualty lists augmented had it not been for the brilliant work of our medical corps on the spot and for the remarkably successful use of the sulfa drugs and blood plasma. These, two of medicine's newest weapons against the casualties of warfare, are responsible for saving many men who even a few months ago would have died from burns, shock or infection.

Although the Medical Corps had no premonition of the Japanese attack, it was prepared. Obviously, the officers had heeded the warnings of war that had come from Washington during late November and had made ready for any eventuality. Not only were there sufficient drugs and medical supplies, but there was a hospital ship at port, and one of the recently conceived mobile hospitals had just arrived and been set up to augment the ordinary hospital facilities at the station. Because of this farsightedness, adequate emergency service could be given to the wounded on December 7.

The idea of the naval mobile hospital came into existence a little more than a year ago. Wise planners realized that in the event of major operations of the fleet beyond the continental limits of the United States, extensive hospital facilities would have to be provided to care for the sick and wounded. It was felt that hospitals of 1,000 to 2,000 beds would be cumbersome, both from the standpoint of organization and supply, and could not possibly afford the flexibility of movement which might be desired to meet certain situations. It was therefore decided that the development of mobile hospitals of 500 bed capacity each would best meet the basic requirements.

The mobile hospital at Pearl Harbor, like the others that are being set up at important naval bases, is a self contained unit equipped to care for all types of patients, as in established naval hospitals. The hospital, in addition to the usual medical supplies and equipment furnished, is provided with such facilities as complete commissary and messing equipment, laundry equipment, cold storage equipment, water purification unit, fire fighting equipment, telephone equipment, electric generators for the lighting system and even an incinerator for garbage and portable septic tanks. Housing is provided in the form of tents and portable metal buildings. Tents are used to house personnel, patients, officers and stores. The portable metal buildings are used for operating rooms, x-ray room, surgical ward, dental office, dispensary, laboratory, galleys, mess hall, cold storage and laundry.

The personnel allowance for the naval mobile hospital is sixteen officers (ten medical officers, one dental officer, one civil engineer, three pharmacists and one machinist), and two hundred and forty-one enlisted men (176 hospital corpsmen and sixty-five other ratings including men of the seamen, artificer, special, commissary and messman branches).

The materials of the mobile hospital weigh approximately 600 tons, and the volume is

Acme

Emergency first aid team cares for casualties at Pearl Harbor. Seriously wounded were later transferred to hospitals—including one newly arrived mobile unit—where prompt, efficient care resulted in a great "medical victory" over burns and injury due to high explosives.

about 112,000 cubic feet. The entire hospital can be assembled and erected in a remarkably short time. Take, for example, the case of Mobile Base Hospital Number 1! Procurement of materials began on July 8, 1940, and, with the exception of a few minor items, was completed on Oct. 24, 1940. All materials for the hospital were assembled on Pier 65 in New York City. The U.S.S. Henderson, ordered to transport all personnel and materials for the hospital to Guantanamo Bay, Cuba, completed loading and sailed on Oct. 25, 1940. She arrived at her destination on the morning of Oct. 30, 1940. Unloading began at once and the hospital was ready to receive all but surgical patients on November 13, just four months after the initial work started!

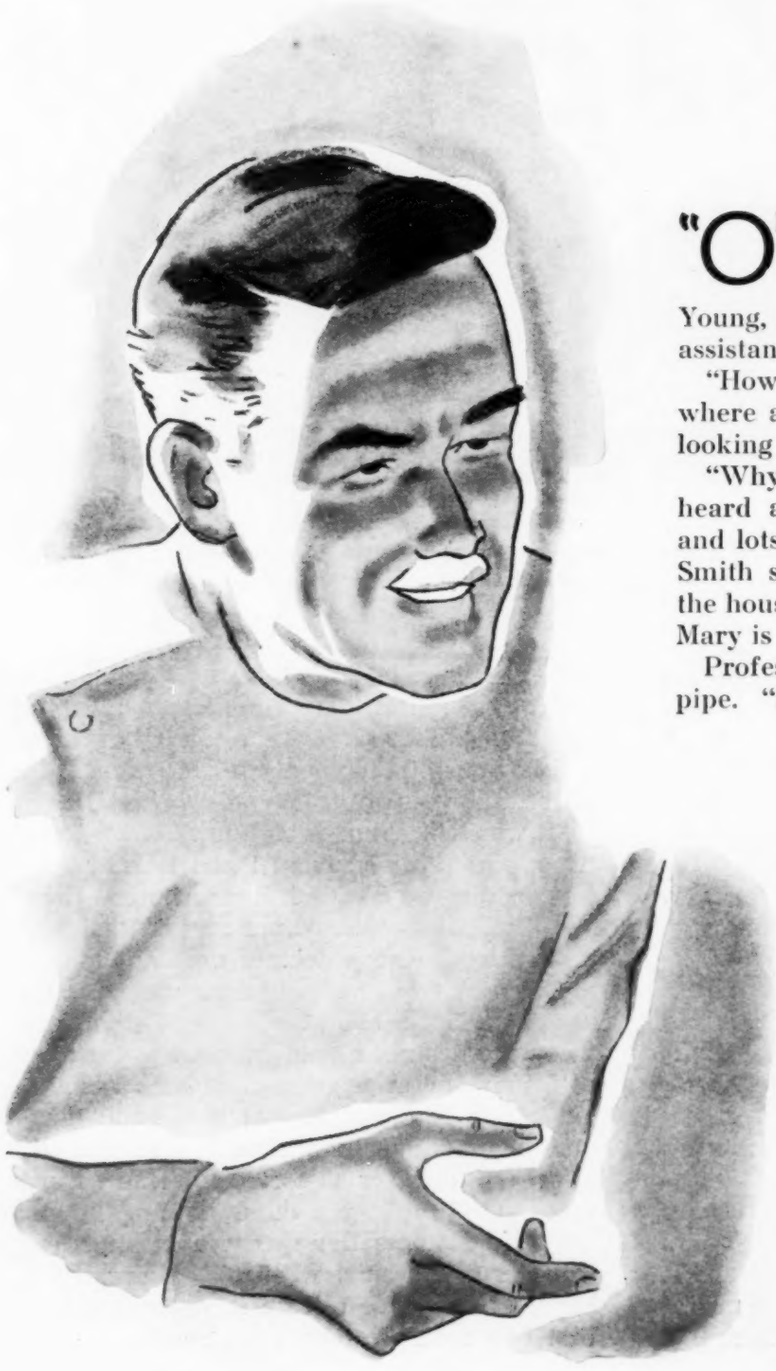
It was principally because of the presence of the mobile hospital that every wounded man could be treated so promptly at Pearl Harbor. The courageous work of the doctors and nurses would have been rendered useless if there had not been complete facilities and enough beds for the casualties. The number of lives saved and the comfort given the wounded at the first mobile hospital under fire has more than proved the value of this type of hospitalization.

"It was burns, burns and more burns," states the report received from Pearl Harbor by the Navy's Surgeon General, Rear Admiral Ross T. McIntire. More than 60 per cent of the injuries treated by the Navy doctors were due to burns.

The majority of these burns were what are known as "flash burns"—burns that occur when the flesh has been exposed to the source of injury for as short a time as a second or two. The National Research Council doctors who looked over the situation several days after the disaster reported that the burned areas closely followed the outline of the clothing. When the sailor was wearing full length trousers and a shirt with long sleeves he was hardly burned at all. The doctors reported that few men wearing *(Continued on page 358)*

The Professor Talks About

BACTERIAL WARFARE



By LELAND W. PARR

"OH! DOCTOR LEYLAND, there's typhoid in town! Do you suppose they've begun bacterial warfare?" exclaimed Myra Young, Professor Leyland's able secretary and assistant, as she entered the room.

"How much typhoid is there, Myra, and where are the cases?" asked the laboratorian, looking up from his journal.

"Why, I don't know exactly, Chief, but I heard at lunch just now that there are lots and lots of cases. Everybody is excited. Miss Smith said her landlady is going to shut up the house and take her children to the country. Mary is all worried about getting a new place."

Professor Leyland smiled and took up his pipe. "I think that Mary won't have to move," he said. "I happen to know the true typhoid situation, and it's quite different from what you have just told me. There are two cases of typhoid in town. One is a man who lives in one of those disreputable island houses in the river, and the other is a lady over on the east side who contracted the disease out in the country. This time last year there were four cases, all in one locality. Do you think that gives us a typhoid epidemic now, Myra?"

"No, I suppose not," admitted Miss Young, "but why are folks talking about it the way they are?"

"That's human nature, I suppose. In January, the Surgeon General told the Conference of Mayors they should be prepared for the possibility of bacterial warfare. So if the public hears of a case of typhoid it thinks the emergency is at hand. It is extremely important for us to realize that untoward events are always with us. We have always had fires, wrecks, explosions and disease. Of course in the emergency we are on guard against incidents of any sort for which the enemy is responsible, but why not leave the determination of their nature to the F.B.I. or the Health Service?"

"Would bacterial warfare be sabotage, Doctor?" asked Myra, as she hung up her hat and coat in the passage between the office and the laboratory.

"As matters now stand, and as we are using the word 'sabotage,' yes. Of course, if the enemy were to approach more closely he might attempt direct bacterial warfare, but I doubt if much of either will occur."

"Don't you believe in bacterial warfare?"

"Not too much. By the way, is there anything we must do this minute?"

"No."

"Well, suppose we talk this matter of bacterial warfare over. You mustn't get taken in again by wild, lunch table tales. Suppose you ask me questions. You know how we often work out problems that are bothering us. I'll try to answer."

"Well, then," began Miss Young, taking the chair by the Professor's desk while he lighted and puffed at his pipe, "Isn't there a possibility of bacterial warfare?"

"Yes, of course, bacterial warfare is quite possible."

"It doesn't seem to worry you much. I should think it would."

"The question of bacterial warfare is not new, Myra. It has been debated and discussed for years but has never figured in any major war operation that I ever heard of."

"But I thought disease and war go together. I'm sure I saw a book in a window downtown called—'Disease and Warfare,' I think it was."

"No doubt you refer to Dr. Major's interesting book in the field of medical history. The title, incidentally, is 'Fatal Partners, War and Disease.' Yes, every war has its disease problems, and some campaigns have perhaps been decided by disease. At different times and places typhoid, dysentery, cholera, typhus, plague and smallpox have been important factors in determining the outcome of a military project. Influenza, pneumonia, measles, scarlet fever, meningitis, malaria and even mumps have also been important, and venereal disease is an ever present factor of disability. But these diseases have *(Continued on page 364)*

LIGHT RAYS and VISION

The nature of light rays and the seeing apparatus of animals is explained in the first of a series of articles on "Our Eyes and How to Save Them"

By JOHN OLIVER McREYNOLDS

THE EYES ARE one of the most important assets of every human being, old or young, rich or poor, sick or well, ignorant or learned, in solitude or in the midst of the activities of a busy life. We cannot have too much or too accurate a knowledge of these marvelous organs of vision! The preservation of normal eyesight contributes in the highest degree to the maintenance of our existence and to the comfort, pleasure and satisfaction of living.

Light is a force widely distributed throughout the universe. We think of light as a single force in nature, differing in degree of intensity without any change in quality. White light, or sunlight, is not a simple, but a complex thing. It can be broken up into different kinds of rays, each having its own special characteristics. The usual method of breaking up white light into its principal components is by the use of prisms or other forms of refracting material. This can be demonstrated by passing a beam of white light through a prism of glass. The rainbow is produced by the breaking of white sunlight into the seven elementary colors: red, orange, yellow, green, blue, indigo, and violet.

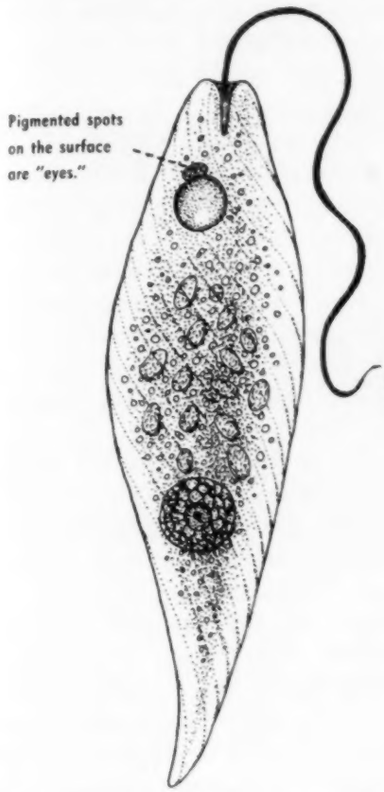
The rainbow is seen when the observer is situated between the sun on one side and falling rain-drops on the other. The sun's rays strike the rain-drops and become broken up as they are refracted, showing the visible bands of color of the spectrum, or rainbow. Then these several colors are reflected back by the rain-drops as from a mirror. Thus the observer sees the rainbow appear in the heavens, just as it did in the days of Noah after the historic flood of ancient times—a symbol of the unchangeable character of natural law during all the intervening centuries.

The power of a prism or of rain-drops to break up white light depends on the fact that the various colors of the spectrum have different wave lengths, and are consequently bent to unequal degrees. Therefore, when white light is made to undergo a strong change in direction, the component colors, with their different wave lengths, cannot keep pace with each other in the process of bending. They are compelled to take divergent pathways according to the relative rapidity of their steps or undulations. This extreme refraction, resulting in the breaking up of white light, is especially prominent near the edges of a convex lens.

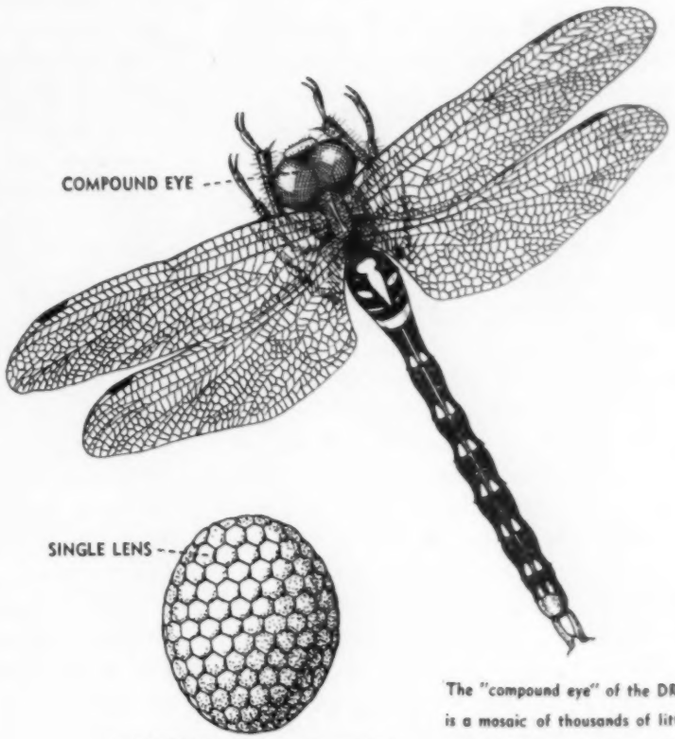
In the eye, this disturbing feature is obviated by the fact that the edge of the lens is covered by the iris, permitting the light to pass only through the pupil and central parts of the lens, where the curvature is less extreme.

In the case of spectacles, or glasses, the manufacturer must adopt measures to neutralize this tendency toward a breaking up of light and also to prevent the wandering of the footsteps of light along the slippery surface of the lens margin. This latter feature is known in physics as the aberration or wandering of light rays.

In addition to the seven luminous rays of the rainbow there are other rays, not luminous or visible but exceedingly powerful and important. Below the red band of the spectrum there are the invisible infra-red or heat rays. These have long, penetrating waves that affect

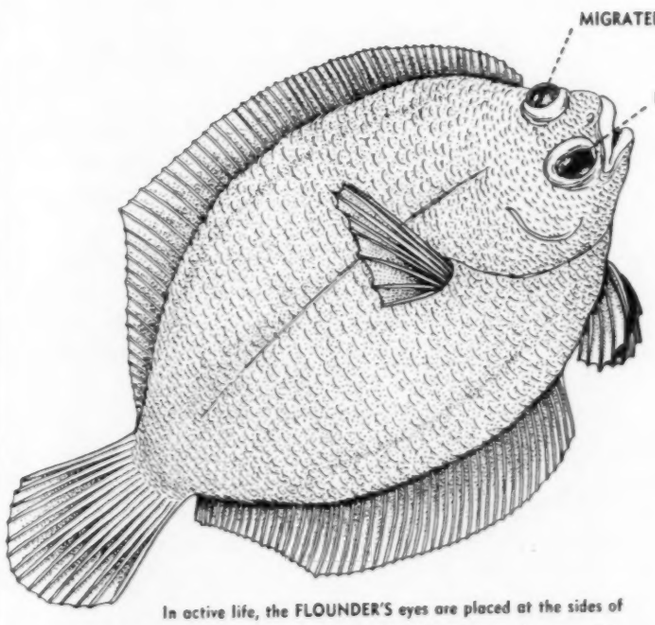


The EUGLENA (greatly magnified)—a one-celled animal whose pigmented surface spots are the first, primordial eyes of the animal kingdom.



COMPOUND EYE (greatly magnified)

The "compound eye" of the DRAGONFLY is a mosaic of thousands of little lenses, each with its own filament of nerve fiber connecting with the nervous system.



In active life, the FLOUNDER'S eyes are placed at the sides of its head. When it retires to the bottom of the sea to spend its last days, the eyes move upward toward the top of the head, the only position in which they could be useful.

EYES OF HIGHER ANIMALS such as the horse are placed definitely on the side of the head, so that they may see objects on the right side with the right eye and objects on the left side with the left eye.

particularly the deeper structures of the body, including the eye.

At the extreme other end of the spectrum, or rainbow, beyond the violet band, is another group of invisible rays called the ultraviolet. These ultraviolet rays produce sunburn. If exposure is continued daily, they finally lead to the formation of a tan pigment on the surface of the body. Other rays include the x-rays and the radium rays, and the more recently developed cosmic rays discovered by Dr. Robert A. Millikan of California.

During the long history of man he had never seen until recently any of the manifestations of what we now call the x-rays or the roentgen rays. He called certain substances opaque, translucent, or transparent, according to the resistance which they offered to the penetration of ordinary luminous rays. Now we are able to see through the human body or even the trunk of a tree by virtue of the effect which these special modified rays of light have on the sensitive elements of a screen.

Moreover, these x-rays have certain qualities beyond their mere power of penetration. They have a selective activity in relation to different living cells of the human body. For instance, rapidly growing cancer cells are the ones which are most readily killed by exposure to the mysterious x-rays. In a similar way, the peculiar rays emanating from radium have the power of destroying certain kinds of living matter without apparently losing any of their powerful reserves. In other words, one gram of radium apparently always has the same constant power and can be used over and over again. The human eye can appreciate the manifestations produced in x-ray pictures, although the rays themselves are still not completely understood. Their power, nevertheless, has been harnessed for human service, and the possibilities are bright for future development.

PLANT AND ANIMAL VISION

We are not accustomed to think of plants as seeing the light, and yet in a real sense they feel the touch of light and respond to its power. In fact, the existence of plant life is interwoven with the potent and mysterious action of various light vibrations pervading the earth.

It is some strange kind of vision that guides upward the myriad fingers of the trees and of the vines lifted into the sunshine. It is some mysterious kind of vision that can see and choose colors for the roses, lilies, and daffodils that beautify our fields and gardens. It is some penetrating kind of vision that can go down into the microscopic world and guide bacteria toward or from the light.

Throughout the long and varied history of plant life on earth it has been the sunlight and the chlorophyll—the green coloring matter of leaves—that have held the keys locking the simple elements of carbon, hydrogen, oxygen and nitrogen with the complex ingredients of the soil. It is thus that the forests and fields, and the reservoirs of coal and oil, have been provided for the comfort and happiness and welfare of mankind.

Sunlight even participates in the chemical action of the inorganic world. The vast photographic industries of our modern civilization rest on the photochemical reactions of this subtle and marvelous force of light. The teeming millions of people who crowd the theaters in nearly every hamlet and city on the globe are paying homage and appreciation to the chemical and physical attributes of this diversified power—light. Light is practically a universal stimulus to animal activity. It is interesting to trace the development of the appreciation of light from the lowest forms of life through the countless higher species in the animal world.

In the most primitive forms of life, in which there are no definite organs of vision, there is, nevertheless, a response to light, and this response resides in the general external surface of the animal, or in its general mass. It is known that these minute creatures, which can be seen only with the aid of the microscope, will move toward the light or from the light according to their inherited characteristics.

Through mechanical modifications of the microscope, whose very principles were suggested by the human eye, we descend into the microscopic world teeming with uncounted myriads of elemental forms of plant and animal life. There we can see the processes of bacterial action in the development of a host of diseases among all plants and animals. Through this medium we can learn many of the mysteries of life and action, which end in the melancholy march to that state of being we call death.

In the more intricate and complex developments of light and life we find definite portions of the body set apart—with special adaptations to en- *(Continued on page 362)*

Walk Your Way to Health

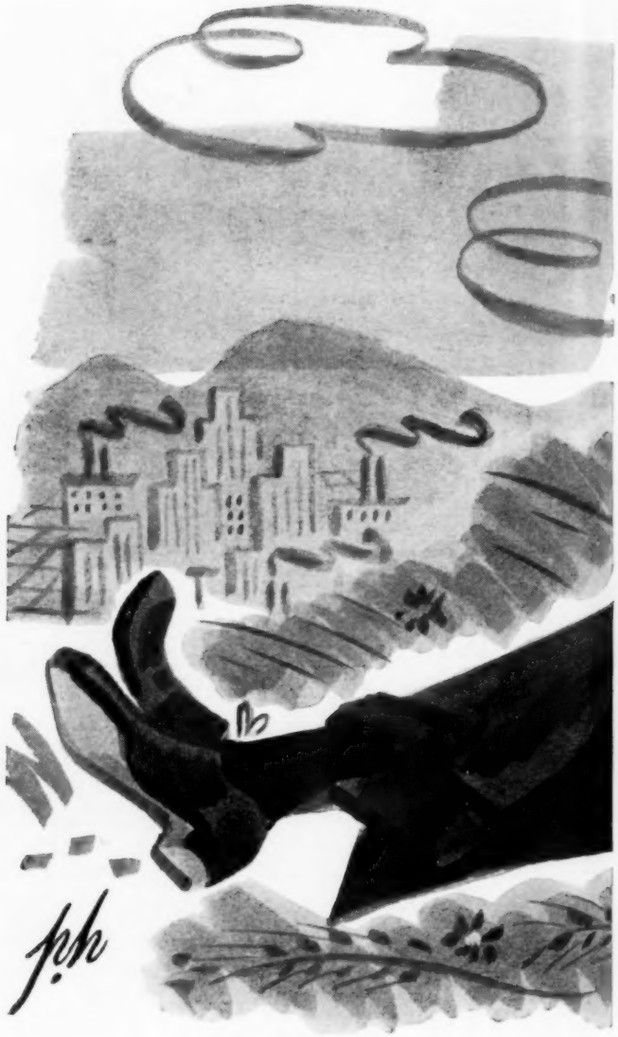
By E. A. CONKLIN

ARE YOU ONE OF THOSE who dislike the very thought of walking when a car, bus or other vehicle is available? Do you studiously avoid having to exercise your feet at every opportunity? In short, are you one of the "ride, don't walk" clan, who number among their supporters youngsters and oldsters alike from every walk of life?

If you are it's really too bad, because apart from its many physical benefits, a daily walk actually improves your mental condition tremendously. If you're inclined to be melancholy when you awake in the morning, a walk will help chase away your depression. If you have deep-rooted worries on your mind, walking will give your weary brain a temporary respite and allow you to face your difficulties a little later on with renewed vitality.

If you haven't walked, to amount to anything, since childhood, you should exercise a little care in the preliminary steps of becoming an expert hiker. For one thing, watch yourself in the store windows as you stride along. Are your actions reminiscent of an old Dutch windmill, arms flinging wildly? Do you hurtle yourself along as though you were Superman hustling through space on a mysterious errand? Or do you muddle dejectedly on, head bent downward like an ostrich? Perhaps your walking *(Continued on page 367)*

How to RELAX



By MORRIS FISHBEIN

"IF WE COULD LEARN how to balance rest against effort, calmness against strain, quiet against turmoil," says Dr. Josephine Rathbone, "we would assure ourselves of joy in living and psychophysical health for life." The psychologists believe that people who live dynamically without being too tense have four main attributes: first, rhythm in their activities with great swings in output and accomplishment, alternating with periods of repose; second, a sense of values which makes it possible to minimize effort and minimize strain; third, ability to reduce muscular tension in any part of the body consciously whenever desired, and, fourth, a readiness to fall asleep at will.

While these attributes may develop spontaneously to some extent in some persons, it is also possible to cultivate them in a measure. In order to aid such cultivation, ten tricks are presented which are believed to be useful in realizing relaxation. They are:

1. Cut down on the intensity of your thinking half an hour before retiring. (Play Chinese checkers, plan an excursion for the week end, write a letter to a friend, fill with pleasant things you have been doing.)

2. Take plenty of time to get ready for bed (next morning's clothes, leisurely bath, and so on).

3. If you like to read in bed choose nonfiction or a "hard" book. Force your mind to grapple with cumbersome facts, bore it into unconditional surrender to sleep.

4. Transplant your mind from fears or hates to a field which has interest without excitement (a new wardrobe, possibly).

5. Make your mind hop from one idea to another. Just as the mind loses consciousness and sleep comes, thoughts become disjointed and scattered. (Start with some happy episode in childhood, for example.)

6. To quiet the body, get rid of any pressure or pain. (Lighten weight of covers, clothes.)

7. Tepid bath without a rubdown. (Get into bed a little damp and chilly. As the body becomes warmed it becomes more and more comfortable. If during the night one becomes sleepless, throw back covers until body becomes uncomfortably chilly. Then when the covers are pulled up again, the body once more sinks into coziness.)

8. Imitate the slow, deep rhythmical breathing of sleep. (Helps regulate the circulation and may ease the mind and emotions.)

9. Relax the muscles completely.

10. Get rested before trying to sleep. (Get into bed an hour or more before your regular time for retiring. Do so night after night to build up a reserve of rest and fall asleep without the old struggle.)

The balance between what can be accomplished by education and practice and what is innate in producing relaxation and longevity is a delicate one. Physicians have long known that people with a low blood pressure, a low basal metabolic rate, a low pulse rate and a low intake of food—if all of these are not too low—tend to live longer than those in whom these physical factors are at extremely high levels. Perhaps equally important is a low threshold for the sense of humor—a mental attitude which does not take life too seriously.

Are You Going to Die

By PHOEBE M. WALTERS

"WHAT we don't know won't hurt us" is a saying that may be true about a lot of things, but what we don't know about cancer is quite another matter. Fortunately for us, doctors do know a great deal more about it today than they did a few years ago. They know how it starts, but not why. They know what to do to get rid of it, but very little about what to do to prevent it. Those things are yet to be learned, but even at that we are much better off than were our forefathers, who were doomed from the start. If we act intelligently our chances of dying of cancer are reduced almost to zero, but we, and our doctors, are faced with two problems.

Both problems arise from the nature of cancer itself. When normal body cells are used up or otherwise destroyed, new ones are formed to take their places. This adjustment of the cells to the laws of supply and demand is a normal process in every organ of the body. But for some unknown reason this perfect balance may be upset. The mechanism controlling the supply is destroyed, and the cells go on multiplying regardless of the demand. Released from their proper control these cells run riot; they multiply without end. Like an ugly weed they grow rapidly and spread out, eventually forming an abnormal growth or tumor. Thus a process which is essential to life is suddenly turned into an instrument of death.

Not until the tumor is formed is there likely to be any hint of what is going on, and then only if the tumor manifests itself by some unusual discharge, or if it interferes with or encroaches in some way on the function of the organ involved, or of some adjacent organ. Herein lies the danger, for before the interference becomes sufficient to cause definite symptoms, and even these are seldom disturbing enough to cause concern in the unwary, the abnormal process may have spread to adjacent organs, or worst of all into the blood stream or into the lymphatic system which drains many parts of the body.

Not all of these tumors are cancerous, or malignant, though they may start in the same places. Why the cells of one tumor have in them a cancer "seed" and the cells of another tumor do not is a problem still unsolved. But the question that can be answered and must be answered immediately on the discovery of a lump or swelling or abnormal growth either seen, felt, or suspected is, "Which kind of tumor is it?" The only sure way to answer that question is to have a piece of that tumor

TABLE I

Five Year Cures in the Treatment of Cancer *

ORGANS AFFECTED	100 PATIENTS TREATED			
	RELATIVELY EARLY		RELATIVELY LATE	
	CURED	NOT CURED	CURED	NOT CURED
Breast	75	25	29	71
Thyroid	70	30	23	77
Uterus (womb)	68	32	27	73
Cervix (mouth of womb)	57	43	28	72
Large intestines	54	46	29	71
Stomach	42	58	17	83

* Mayo Clinic statistical department.

Such cases are officially accepted as cures because few cases that remain well for a five year period will recur.

# of Cancer?

examined under the microscope by a trained specialist.

Even though the tumor proves to be noncancerous, or "benign," in all probability it will still need to be removed, because its mere size would eventually interfere with some vital organ or passageway and would overtax the ability of the blood stream to supply it with food. But its removal would not involve as extensive an operation, because benign tumors are usually surrounded by some sort of limiting capsule and do not invade the adjacent tissues.

Malignant (cancerous) tumors, on the other hand, usually have no clearly defined boundary and seem maliciously eager to invade the surrounding tissues. A cancer in its early stage is usually confined to a small area, but leave it alone and it will grow by leaps and bounds. It is no sickly, feeble tissue but one which possesses tremendous vigor and power of growth. One might as well build a fire inside one's body as to harbor and nourish a cancer, for, like fire, cancer will spread, get out of control and send out sparks from the main blaze to settle elsewhere and thus start a secondary fire in some vital and perhaps inaccessible part of the body.

The only forms of cancer treatment approved by the medical authorities are surgery, x-ray and radium, either singly or in combination. If you hear of some one who has been "cured" by other methods you can be sure that he never had cancer in the first place and was the victim of a faulty diagnosis. The more doctors know about cancer the less they are willing to promise in the way of a "cure." In fact, they speak not of curing cancer but of treating it and arresting its growth. By keeping records of cancer cases over a period of years the success of these three types of treatment, and the failure of all other types, can be demonstrated. The success of surgery, radium or x-ray, however, is directly related to the stage which the cancer has reached when treatment is first undertaken.

For instance, table 1 shows the "cures" (five year survivals) for cancer in various organs, according to whether the patient was treated relatively early or relatively late in the disease. By "relatively early" is meant before the cancer has spread from its original site to other parts of the body.

If the race were only against time we might hope that eventually, when all the doctors became experts in diagnosing early cancer and all the people were educated to recognize its early symptoms, the first two columns in table 1 would represent the worst that could happen. Unfortunately, there are other considerations, the most vital of which is the degree of malignancy.

Here again doctors do not know why the mortal character of cancer varies in degree, but they know that it does. The pathologists, doctors with special training for this type of work, can take a small piece of body tissue suspected of being cancerous and after preparing it properly and examining it under the microscope can tell not only if the cells are cancerous but determine their degree of malignancy or virulence. The mildest type of cancer, like a smoldering fire, might exist in the body for weeks, months or even years and still on discovery be confined to a small area and be curable. The most severe type, on the other hand, is like a bomb from the blue, causing an immediate conflagration and spreading so rapidly that within an incredibly short period of time, possibly weeks, it may be completely out of control. *(Continued on page 379)*

TABLE II

Comparison of Five Year Cures of Cancer of The Breast *

PERIOD OF TREATMENT	100 PATIENTS TREATED	
	CURED	NOT CURED
1910 - 1915	41	59
1916 - 1920	42	58
1921 - 1925	43	57
1926 - 1930	48	52
1931 - 1935	56	44

* *Mayo Clinic statistical department.*

Nothing could illustrate more clearly either the potency of the disease or the determination of the medical profession to conquer it. Progress has been painfully slow, but it is progress, and the momentum is increasing.

The Tuberculin Test in

Much of the great progress in the prevention of tuberculosis is made possible by the tuberculin test — a specific aid in diagnosing tuberculosis

By J. ARTHUR MYERS and VIRGINIA L. DUSTIN

FIFTY YEARS AGO, Robert Koch, discoverer of the tubercle bacillus, introduced living bacilli under the skin of a group of guinea pigs entirely free from tuberculosis and another group which had the disease; each group responded in a different manner. He then repeated the experiment, using dead tubercle bacilli, and again observed a difference in the response. From this, he reasoned that a substance might be prepared from tubercle bacilli which could be used effectively in diagnosis, treatment and prevention of tuberculosis in animals and man. Koch's experiments led finally to the development of tuberculin, whose diagnostic quality in animal and human medicine was soon recognized.

Later experiments proved conclusively that tuberculin is highly specific in the diagnosis of tuberculosis in cattle; the fact was easily established in animals. The tuberculin reaction detected tuberculosis even though the microscope was necessary to find the lesions. When applied to man the test was equally specific, although it was difficult to prove this point as promptly, since it was only when postmortem examinations were made that the true situation could be revealed. Detailed postmortem examinations of persons who reacted to tuberculin but had no symptoms of the disease revealed the presence of tuberculous lesions.

For approximately three decades tuberculin was made by essentially the same method described by Koch. There was usually added to the final product a preservative, such as carbolic acid, of such concentration as to make life impossible for any organism, including tubercle bacilli. The protein of the tubercle bacillus was found to be the active principle in producing the tuberculin reaction, and since some persons are sensitive to various other proteins, it was essential that tuberculin contain no protein except that of the tubercle bacillus. Since it is only the protein fraction of the tubercle bacillus to which tissues become sensitized,

Tuberculosis Prevention

After finding children who react to tuberculin in school tests, doctors go into their homes to trace possible sources of infection by examining parents, grandparents and others in contact with the children.

the idea was conceived of using only the protein as a testing material. Such a preparation was introduced in 1931 and is now available under the name of Purified Protein Derivative.

In the earlier days, tuberculin sold at approximately $1,000 a pint, but as the demand for it increased so it could be made in large quantities, the cost of production was materially decreased. In 1893 provision was made to supply tuberculin without charge to certain health officers and official veterinarians of the United States and its territories. In 1907, Dr. W. A. Evans, Commissioner of Health of the City of Chicago, arranged for free distribution of tuberculin to physicians. In recent years, it has been distributed without cost to physicians by state and local tuberculosis associations and departments of health, so that today it is free to physicians as well as veterinarians in practically all parts of this country.

Prior to 1907, the tuberculin test was administered by the subcutaneous method; that is, it was introduced immediately beneath the skin with a hypodermic needle. The reaction was determined largely by the development of symptoms, such as fever, which appeared within twenty-four hours after administration. Veterinarians began to take the temperature

of cattle six hours after they had administered tuberculin and recorded the readings every three hours. If an elevation of two degrees occurred, the animal was said to be a reactor, and the postmortem examination nearly always revealed tuberculous lesions—despite the apparent excellent health of the animal. If no such elevation of temperature occurred within twenty-four to thirty hours, the animal was said to be free from tuberculosis, and postmortem examinations revealed that this was nearly always true. When the subcutaneous test was administered to a human being suspected of having tuberculosis, he was kept strictly in bed, and frequent temperature readings were recorded. If a definite elevation was observed, other symptoms, such as malaise and even changes in the suspected region—increased physical signs over a part of a lung or swelling and tenderness of lymph nodes along the sides of the neck—sometimes occurred. Any person who had fever with or without these additional findings was said to be a reactor and, therefore, had tuberculosis; whereas any one who did not present an elevation of temperature within twenty-four hours was said to be a non-reactor and did not have tuberculosis.

The amount of tuberculin used in the subcutaneous test was so large that it was capable of doing harm. Therefore, it was necessary to determine a dosage that would be incapable of causing injury to the animal or human body and which would still determine with accuracy the presence of tuberculosis. In 1907 and 1908 several alternative methods were developed; some of these are still in use in certain groups. The method in widest use today, devised by Mantoux of France in 1908, is known as the intradermal or intracutaneous test. The advantages of the intracutaneous method of administration are that a measured amount of tuberculin is introduced into the layers of the skin and remains where it should be. No tape or bandaging of any kind is necessary, and several hundred tests can be administered by one person in an hour.

Recently, an American physician introduced another modification which is designated as the tuberculin "patch" test. The patch consists of a strip of tape to which has been attached two small squares of thin filter paper saturated with undiluted tuberculin and dried. The tape is then tightly applied with the patches adjacent to the skin, where they remain for forty-eight hours. It is best to allow another forty-eight hours to elapse after the removal of the patches before reading the test. Objections to the patch method of administering tuberculin are that many persons complain of the itching sensation produced by the adhesive tape, with excessive perspiration the adhesive may actually fall off, and most people dislike to omit bathing for forty-eight hours while the tape is on the skin. Although physicians' desks in this country have been generously supplied with circulars and pamphlets presenting the good qualities of the various other methods of administering tuberculin, the intracutaneous method of Mantoux must be looked on as the standard.

The procedure of the intracutaneous test does not differ from that employed in determining the presence of immunity for diphtheria and scarlet fever. To state that only a small percentage of the persons in any political division will submit to this test because it involves the use of a needle is to admit that the public has not been properly informed. In testing human beings with tuberculin, strict supervision in the manufacture of tuberculin is necessary. Obviously, inferior tuberculin may lead to unsatisfactory results, and on occasions the tuberculin test has been unjustly condemned when in reality the condemnations should have been directed at the producers of tuberculin of poor quality.

In administering the intracutaneous test, 0.1 cc. of diluted tuberculin is introduced into the layers of the skin through a fine hypodermic needle. It is important that the needle should not pass through the skin into the subcutaneous tissues, since no reaction will then be manifested even though the person tested is sensitized. This error is frequently made and is responsible for some of the poor results of testing. The tuberculin test should be interpreted at the end of seventy-two hours. The reaction is indicated by an area of swelling or hardening of the skin at the site of administration. This area must be at least 5 to 10 millimeters in diameter; small, shot-like areas of hardening are not significant. In interpreting the tuberculin test, it is far better to use the sense of touch than the sense of sight, since hardened areas may be felt when they are not visible. Small areas of pinkness or redness do not constitute a reaction to tuberculin; they are usually due to injury and for the most part disappear in less than seventy-two hours. One of the chief errors in the interpretation of the tuberculin test has *(Continued on page 372)*

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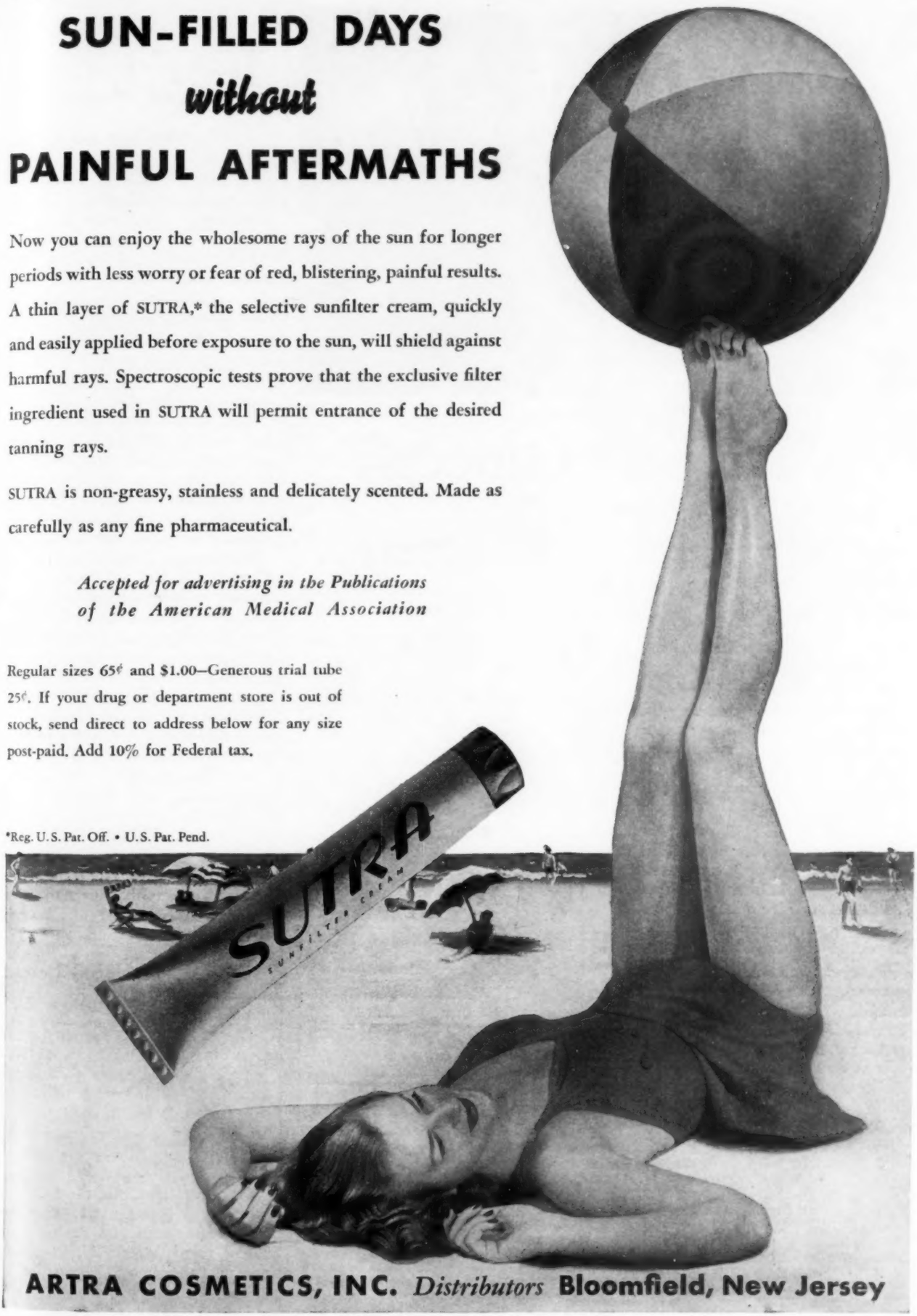

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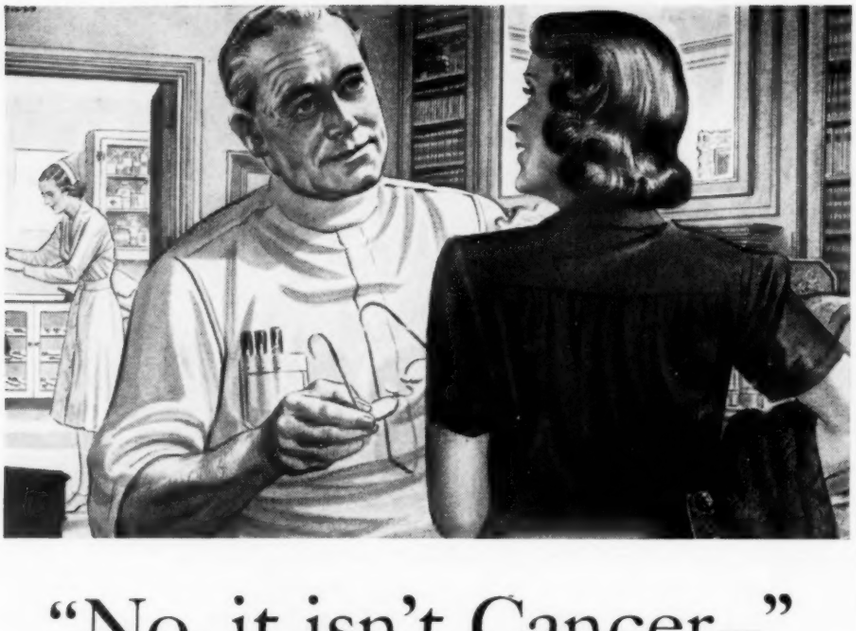

"No, it isn't Cancer—"

THIS WOMAN had one of the symptoms often associated with cancer. She asked herself, "Shall I wait and see what happens . . . or go to the doctor?" Wisely, she chose the latter course.

Now, after thorough examinations and tests, she has just heard the welcome words, "No, it isn't cancer."

How thankful she is that she went to her doctor at once! For, even though the symptoms usually associated with cancer do not *always* mean cancer, they do indicate that something is wrong.

If cancer *is* present, the earlier it is discovered and properly treated, the greater are the chances for a cure. The chances of curing *early* cancer of the breast are almost four times greater than those of curing it in its late stages; in early cancer of the pelvic regions, the chances are *eight* times better.

That is why anyone with a suspicious cancer symptom should go to the doctor immediately. Fortunately, those cancers which give easily recognizable danger signals are usually the ones which can be treated most successfully. Here are some of the danger signals:

1. Any unusual lump or thickening, especially in the breast.
2. Any irregular or unexplained bleeding.
3. Any sore that does not heal—particularly about the mouth, tongue, or lips.
4. Persistent indigestion, often accompanied by loss of weight.
5. Noticeable changes in the form, size, or color of a mole or wart.
6. Any persistent change from the normal action of elimination.

The only positive way to tell whether cancer is present is a microscopic examination. If cancer is present, there are three forms of treatment—surgery, X-rays, radium, or a combination of these.

Metropolitan will send you a free booklet, 52-Z, "A Message of Hope about Cancer."

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Pearl Harbor

(Continued from page 343)

undershirts suffered chest burns and few suffered burns at all whose extremities were completely covered.

Unfortunately, at the time of the attack many sailors were lightly clad—some in shorts only—and consequently suffered painful injuries. The Navy doctors will not disregard this lesson—that the most critical burns can be avoided by complete clothing.

The burned sailors at Pearl Harbor were treated by a new method used for the first time on a large scale. The sulfa drugs made their debut as an American wartime healing agent. A mixture was made of mineral oil and sulfanilamide or sulfathiazole. Large dressings were dipped into this mixture and then applied directly to the burned area. The oil acted as a soothing lotion to the burned flesh, while the sulfa drugs prevented the development of infection. A sulfanilamide powder was also used, dusted directly on the burn, but it was found to cake over the wound surfaces and its use was discontinued.

At the same time large doses of sulfathiazole were given by mouth as a further aid in stopping invading germs before they could do any damage. By these means the danger of infection from burns was reduced to a minimum, and in only a very few cases did any infection develop. Thanks to the sulfa drugs, men who by all past standards would have died were recovering and were eager to get back into the fight.

Lesser burns were treated by that sovereign remedy, tannic acid. In some cases, dressings were dipped in gun tubs filled with tannic acid solution and then placed gently on the wound. In other cases tannic acid jelly was rubbed directly over the burned surfaces.

Next to burns, the most frequent number of injuries was caused by high explosions and flying debris. There were intestinal and abdominal wounds, many so serious that

(Continued on page 392)

The Great American ICE CREAM CONE

By DORIS McCRAY

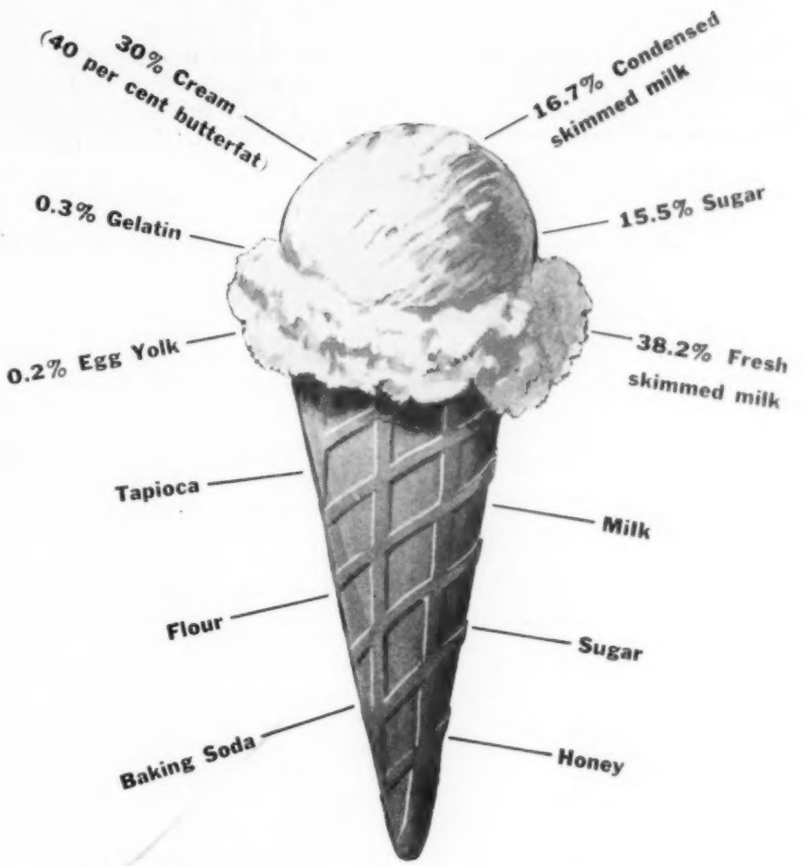
PLEASURE FOR FIVE PENNIES—that we may eat while walking back to work—is still our American privilege, although delicate fruits, flavors and beverages from tropic isles become scarce. Our favorite national dessert is made and consumed only a short distance from dairies where the rich milk and cream are produced.

The little child with five pennies clutched firmly in his fist measures their value in terms of pleasure. Ice cream is pleasantly sweet; it feels smooth on the tongue. He cares not that it contains calcium and riboflavin. He fails to associate it with the milk his mother makes him drink. His interest is solely to satisfy his sweet tooth, yet he will choose an ice cream cone in preference to chewing gum, licorice ropes, candy-coated peanuts or all day suckers which have a higher sugar content and no calcium or vitamins.

The factory worker, in a few minutes for recreation, wants mainly refreshment to give him a "lift." The ice cream cone in this role competes with smokes, soft drinks and candy. He seeks not only the pleasure of the moment but the after-effect of a small amount of food or stimulant.

The hospital dietitian uses ice cream as a "treat"—a light, pleasurable dessert to tempt the finicky appetite. But she tabulates all of its nutritional values. On the hospital tray, it ranks with milk desserts, tapioca, jellied milk or rennet desert.

The homemaker uses ice cream for its "partified," festive air. In her menu, ice cream is a flavored, sweetened, attractive dessert. Sometimes it replaces a heavy, hard-to-digest dessert. She uses ice cream mainly for the wholesome pleasure it gives to family and guests, but she appreciates it because it saves her time, effort, sugar and fuel, and it demonstrates that she is discriminating and careful.



The Food Value of an Ice Cream Cone

The smooth, melt-in-the-mouth texture and rich flavor of ice cream sell it to every one—hence no need to dwell on that luscious, mouth-watering goodness. Since the days when we laboriously took turns at turning the crank on our back porch, the ingenuity of man has brought the esthetic and gustatory appeal of ice cream to an unheard-of peak of perfection—to enjoy in dark days when pleasures are few.

We must thank the dairy industry for performing a gigantic and heroic task in stepping up production of all dairy products for lend-lease and Army and Navy needs, yet having plenty left for better nutrition at home. We do have ample milk and milk products.

So important has ice cream become that it is included in each reference to the protective foods in the newest editions of our standard books on nutrition. We read that, in medium cost dietaries studied, "milk (including cheese and ice cream) was the largest contributor of riboflavin to the dietary, meat (including poultry and fish) was second, and vegetables stood third." Again we read that "fruits and vege-

SAVE SUGAR by using MOLASSES

NO SUGAR NEEDED in this BRER RABBIT gingerbread

½ cup melted shortening
1¼ cups Brer Rabbit Molasses
1 egg, beaten
2½ cups sifted flour
1½ teaspoons soda
1 teaspoon cinnamon
1 teaspoon ginger
½ teaspoon cloves
½ teaspoon salt
¾ cup hot water

Mix shortening and molasses; add egg. Stir until blended. Mix and sift dry ingredients; add alternately with hot water. Bake in well-greased 9x9x2 pan in moderate oven (350° F.) 45 minutes. Yields 16 portions.

NO SUGAR NEEDED in these tasty BRER RABBIT cookies

¾ cup melted shortening
1 cup Brer Rabbit Molasses
2 eggs, beaten
2¼ cups sifted flour
4 teaspoons baking powder
¼ teaspoon salt
1 teaspoon cinnamon
½ teaspoon ginger
½ cup milk
½ teaspoon soda
½ teaspoon lemon extract
1 cup raisins, chopped

Mix shortening and molasses. Add eggs; stir until blended. Sift together dry ingredients; add to first mixture alternately with milk, in which soda has been dissolved. Add flavoring and raisins. Drop by teaspoons on greased baking sheet. Bake in hot oven (425° F.) 8 to 10 minutes. Makes 4 to 5 dozen cookies.

NO SUGAR NEEDED when you use delicious BRER RABBIT Molasses as the sweetening for cereal, stewed fruits, grapefruit, baked apples, baked ham, candied sweet potatoes.

• • •

Scientific tests have shown Brer Rabbit Molasses is second only to liver as a rich food source of available iron!

Brer Rabbit Molasses comes in *two flavors* to meet taste preferences: Green Label, dark and full-flavored; Gold Label, light and mild-flavored.

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tables generally, and milk, cream and ice cream, tend to ensurance of good intakes of calcium, phosphorus, vitamin A and vitamin C."

In order to provide for thiamin (vitamin B_1) and to provide other vitamins and mineral elements at the same time, (1) at least half the needed calories should be taken in the form of such protective foods as milk (including cream and ice cream), fruits, vegetables and eggs, and (2) at least half the breadstuffs and cereals should be whole grain products. The thiamin value of 100 Gm. of plain ice cream is given as approximately 0.04 mg., the riboflavin 0.1 mg., ascorbic acid (vitamin C) 1 mg., and the vitamin A value is approximately 450 international units. Experimental animals that furnish these figures must have enjoyed their ice cream!

The average American consumed within the last year:

329 pounds of fresh milk
17 pounds of butter
16 pounds of evaporated milk
9 pounds of ice cream
6 pounds of cheese

This totals 377 pounds out of an estimated total of 1,440 pounds of food per person during the year—which certainly shows a strong preference for dairy products.

Because the ordinary person is more apt to be short on calcium than any other chemical element, we have come to think of milk (including cheese, cream and ice cream) as a most important source of calcium. There is approximately 0.08 Gm. of calcium in 100 Gm. of ice cream, also 0.08 Gm. of phosphorus and 0.0002 Gm. of iron.

There is absolutely no danger, in telling the nutritional value of ice cream, that it may become one of those foods you "must eat because it is good for you"—hence (by some quirk of the mind) less liked than things that merely taste good.

An average ice cream mix consists of 30 per cent whipped cream (cream containing 40 per cent butter fat), 16.7 per cent skimmed condensed milk, 37.2 per cent skimmed milk, 15.5 per cent sugar, 0.3 per cent gelatin and 0.2 per cent egg yolk. The skimmed condensed milk and the skimmed milk contribute significant quantities of lactose, casein, lactalbumin and the mineral salts found in milk. These are known as "milk solids not fat." The percentage of sugar is much lower than in candy, and the percentage of milk and cream is a great deal higher.

Two thirds of a cup (most housewives consider that one quart of ice cream will serve six people) of ice cream furnishes about 200 calories from the 3.5 Gm. of protein, 11.9 Gm. of fat and 17.9 Gm. of carbohydrate which such a serving contains. These figures are based on the average composition of ice cream but will vary somewhat among individual products.

Our reference book does not give an average for candy, because it varies greatly according to the ingredients which may include milk, cream, butter and nuts. But the main ingredient may be sugar or sirup.

One half cup of refined white sugar furnishes 400 calories. It furnishes 100 Gm. of carbohydrate, but no other values: no protein, fat, minerals or vitamins. The calories of sugar are easy to replace in the diet, but the craving for something sweet, especially at the end of a meal when sugar is a suitable satiation factor, is best met with a food that contains a low percentage of sugar and large bulk.

The air whipped into ice cream to make that large bulk and the desired velvety texture is referred to as "overrun." The word reminds us of the time we poured too much cream into the freezer, and it came out the top while it froze. (We had a spoon handy!)

According to the book, "Accepted Foods," prepared by the Council on Foods of the American Medical Association, "most ice creams have between 100 and 50 per cent overrun, though it is not unusual to find ice cream with as much as 130 per cent overrun."

The federal government in buying for its institutions specifies ice cream of not more than 100 per cent overrun, or about 50 per cent air. This ice cream must weigh at least 4½ pounds to the gallon. That means 1 pound and 2 ounces to the quart or about 9 ounces (255 Gm.) to the pint.

The average composition of ice cream (of not more than 100 per cent overrun), according to the Council on Foods, is protein 4 per cent, fat 14 per cent and carbohydrate 21 per cent. A small serving of this same ice cream (one-sixth of a pint or 43 Gm.) will provide 1.7 Gm. of protein, 9 Gm. of

carbohydrate, 6 Gm. of fat, 35 mg. of calcium, 34 mg. of phosphorus, 0.08 mg. of iron, 200 units of vitamin A and 96 calories.

When I made ice cream myself, I liked to pour top milk into the rich cream to thin it down, so it would not taste so rich, however a good proportion of rich cream will give a richness of flavor that can be obtained in no other way. The different states set a legal minimum, ranging from 8 to 14 per cent butterfat. Ice cream purchased for government institutions must contain 12 per cent butterfat. Many states set a legal minimum for total milk solids which runs from 18 to 20 per cent (including the butterfat). The butterfat carries vitamin A as well as extra calories, and if vitamin D milk is used for ice cream, this vitamin is found in the cream.

The body and texture of ice cream will vary according to the ingredients and method. By body, the whole mass of ice cream is referred to—its firmness or resistance. Texture refers to the finer particles of the ice cream. Home made ice cream is apt to have fine, needle-like slivers of ice unless it is properly made. Commercially, the ingredients are weighed carefully. Homogenized cream makes smoother ice cream which has smaller crystals. In homogenization of the cream, the fat globules are broken up. This also means that ice cream is often more easily digested than plain whole milk.

Pasteurization means safety. Many local departments of health require the pasteurization of all milk products in ice cream, and a few require that the ice cream "mix" (as it is called just before it is frozen) shall be pasteurized. Some states have set a legal limit on bacterial count. The maximum set by the federal government for ice cream bought for its institutions is 50,000 bacteria per cubic centimeter. While the purity of ice cream is under control of the local health board, it is practically assured any place in this country, since standardized ice cream making methods call for pasteurization wherever necessary to prevent losses to the ice cream maker.

I remember how, as a small child perched on a tall stool at a drug store, I would eat the ice cream from all sides of that exciting mound, before it would have a

Are you fighting the war in bed?

IN these trying times, worry and tension are causing sleeplessness, nervousness, and indigestion, among people previously in good health.

This anxiety is the reason many of these people—quite unconsciously—seek solace in more and more cups of hot coffee.

Now, some people can drink coffee without ill effect, but many *cannot* . . . and although coffee may seem to afford relief, it can actually aggravate the condition.

If you happen to be a sufferer from nerves and tension—and you either decide to give up coffee on your own hook, or follow your doctor's advice—it will be more enjoyable if you:

"Drink Postum, Instead!"

Postum is made entirely from home-grown whole wheat and bran, roasted and slightly sweetened. This wholesome beverage contains no caffein—no stimulants whatever.

Don't expect Postum to taste like coffee! It is a delicious drink with its own special flavor—heart-warming, cheering, the *favorite hot drink of millions*. You should drink Postum instead of coffee for two weeks at least . . . then see if you don't get over the effects of caffein—if you don't feel better—if you don't find that this delicious, different-tasting drink removes all hankering of yours for coffee.

Postum is one of the most economical mealtime beverages you can buy; it actually costs less than ½¢ a cup.

Ask Your Doctor About Postum

Postum comes in two forms: Postum Cereal, brewed like coffee; Instant Postum, made instantly in the cup. A product of General Foods.

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chance to melt and run down. Ice cream should be eaten not too fast—that it may melt in the mouth for fullest enjoyment, thus it is warmed slightly before it reaches the stomach. We, as a nation, have been eating ice cream for so many years that we know its chilling effect in the stomach is slight. Many people enjoy it served with a cup of hot coffee, or a cereal beverage, especially in winter.

The amount of egg yolk affects the body of the ice cream as do the "milk solids not fat." With too little protein, the body of the ice cream has little resistance, but with too much protein the ice cream will be heavy and soggy. Milk solids not fat help give the proper body, but when the amount is too large, the ice cream is apt to be gritty or sandy in texture.

Flavoring and possibly a dash of salt round out the flavor. Many other flavors may be added to plain ice cream. Here is a classification of frozen products: 1. Plain ice cream, which may be flavored with vanilla, chocolate or maple. 2. Nut or fruit ice cream, which is plain ice cream with nuts or fruits added. 3. Bisque ice cream, made from a plain ice cream basis with the addition of macaroons, cake crumbs and the like. 4. Mousse, made with a whipped cream base. 5. Parfait, or New York ice cream, made from the same ingredients as plain ice cream, with enough egg yolk to give a yellow color. 6. Ice cream puddings, containing a mixture of fruits, and eggs in amounts similar to New York ice cream. 7. Frozen custards. 8. Ices made from fruit juices diluted with water and sweetened. 9. Sherbets made from milk or ice cream mix and fruit juices.

However, we are concerned chiefly with that poor man's favorite—the ice cream cone. Who ever saw a man looking glum while he ate an ice cream cone? It is a natural cheerer-upper.

Today's finer cones are the "waffle baked" safety type. The cone "dough mix" has ingredients similar to layer cake, but less sweet: soft winter wheat, sugar and honey in only small amounts, tapioca flour, baking soda and milk, well mixed then baked quickly to make them crisp. The cone remains crisp under melting ice cream, and is preferred to a paper carton and spoon. Cones should be and usually are protected in containers from flies, dust and handling until they are served.

Light Rays and Vision

(**Continued from page 348**)

vironment and the needs of life—which develop into the organs of vision, or eyes. It is an instinctive longing to see that paints on the outside surface of the humble euglena—a poor, blind, speechless, one-celled animal—a few little pigmented spots that are the first, primordial eyes of the animal kingdom.

ANIMAL EYES

In many of the lower forms of animal life there may be literally thousands of eyes or rudiments of eyes serving the needs of the particular species. A striking illustration of this is in the dragonfly with its thousands of eyes—little refracting units put together like a mosaic, so that each minute lens has its own small filament of nerve fiber leading to a central receiving station in the nervous system.

There is no separate movement in these individual eyes, but groups of them move together to gather up emanations of light and reflections of light from various objects in the outer world. There are countless modifications in the number and position and function of these minute organs of vision.

As we ascend the scale of animal development, the number of eyes is reduced generally to two, and the position of these two varies with the species or the age and habits of the individual animal. For instance, the flounder or the sole in his earlier and active life swims about like other small fish, with his two eyes symmetrically placed, one on each side of his head. But when he retires from his active business life he lies flat on his side at the bottom of the sea for his remaining days. Nature then helps him to adjust the position of his eyes so that both of them are placed on the upper side of the head, the only position in which they could be utilized.

Most higher animals of land and sea, such as the horse and elephant, and the tarpon and whale, have two eyes placed definitely on the side of the head, so that they see objects on the right side with the right eye and objects on the left side with the left eye. Not so with man. His eyes are placed in the front of his head and are provided with a wonderful mechanism for moving in a multitude of different positions to increase their usefulness. In other words, man has a field of what is called binocular single vision, or a field in which vision is accomplished by the joint and simultaneous action of both eyes.

In the lower animals the right eye and the left brain cooperate, and likewise the left eye and the right brain, while in human beings both eyes participate at the same time in conjunction with the brain. This is due to the fact that in the lower animals there is a complete crossing of the optic nerve fibers back of the eyeball, while in man there is only a partial crossing of these fibers. This condition of binocular single vision in man is helpful in a finer appreciation of the relation of things and in perceiving the quality of the mental pictures received by the brain.

It is an interesting law of nature that the special primitive cells for the reception of light are in the due course of time transformed into the more complex organs of vision, culminating in the marvelous combination of beauty and service realized in human eyes, which are true symbols of the soul.

Editor's Note: This is the first of a series of articles by Dr. McReynolds. The second, dealing with the anatomy of the human eye, will appear next month.

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Ice Cream . . . . . in crisp sugar, milk and honey

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Ice cream is the finest treat for children, soldiers, workers, everybody . . . delicious, rich, good for you. And Safe-T Cones "complete the picture."

They are a chef's triumph of sugar, milk and honey—crisp, safe and convenient. Wonderfully made and rigidly inspected—sure to be found wherever you go. These are the cones that ice cream dealers who insist on the best *pay more for* and *serve with pride.*

With America on the march, a Safe-T Cone of ice cream is a patriotic treat . . . saves time, dishwashing, saves hundreds of millions of paper containers. You can eat a Safe-T Cone "on the run"—it's good for you—and nothing's wasted.

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The patented design of Safe-T Cones makes them drip-proof, neat to handle, safe from breaking or spilling on clothing, gloves, car seats.

Safe-T Cones are rich in food values and good to the last bite . . . made of high quality winter wheat flours, sugar, honey, tapioca, baking soda and milk. Safe-T Cones are caramelized by an exclusive "pressure baking" method in their special "waffle-iron" . . . crisp to the last nibble. There is no finer treat for Junior—Sister—"Grandpop"—Baby—Mother—Dad—than Safe-T Cones of fine ice cream.

SAFE-T CONE COMPANY

Division of Illinois Baking Corporation, 2230 South Union Avenue, Chicago, Illinois

Bacterial Warfare

(*Continued from page 345*)

largely figured *within* an army—either in training under good living conditions when new recruits from widely different backgrounds come together for the first time, or under the trying conditions of the march, the emergency bivouac and the battlefield. The terrible effects of these diseases have not been the result of enemy action. I would hardly call that bacterial warfare!"

"What *is* bacterial warfare, then?"

"It is the use of bacteria or their products by a combatant to injure the enemy. When delivered behind the lines by enemy agents located there it is called sabotage—as we are using that term these days. There are two kinds of bacterial warfare when we consider two facing, opposing forces. On the one hand, two armies may face each other on the same ground—separated only by a few miles. Germany and Russia illustrate this. On the other hand, the opposing forces may be separated by well marked bodies of water or other barriers, as, for instance, Japan and the United States or Germany and England."

"Why is there a difference?"

"The point is this," replied the Professor, laying down his spent pipe, "If agents of disease are loosened on a foe remote only a few miles and on the same terrain, the attacking power can use only an agent to which its own soldiers are immune or against which they may be readily protected. Otherwise the attack may backfire and injure the aggressor as much as it does the attacked! If, however, there is an effective barrier between the combatants so much care need not be taken."

"Would the typhoid bacillus be a good organism for use in bacterial warfare, Professor Leyland?"

"I don't think so. It is a delicate organism and causes disease only when great numbers of its kind gain entrance into water or milk and susceptible people drink them before that water has been processed or the milk pasteurized. It wouldn't matter much if some enemy alien dumped a gallon of typhoid bacilli in the river here above town. The treatment the water goes through would make it safe for drinking in the city."

"But wouldn't that make the river dangerous?"

"At the point where the billions of typhoid bacilli were dumped in the river the water would be very dangerous. But the danger would diminish through dilution with other water and as the microbes died as the result of antagonistic action of various physical and biologic forces. Some distance downstream, shorter than we think, the water would be perfectly safe. But typhoid is merely one example. No country is as well protected against disease as we are because of our high standards of living. We have highly trained health officers in every state and large city and even in a large number of rural areas. Then there is another thing."

"What is that?"

"I am thinking of the fact that in bacterial warfare we could give better than we were sent! Take Japan, for instance, a country which is ten times as densely inhabited as the United States. Its buildings and its sanitation do not match ours. Its diet is less balanced and protective. Disease is particularly dangerous in the face of crowded conditions and unsatisfactory standards of living. Japan is already heavily seeded with tubercle bacilli and the organisms of typhoid, dysentery and cholera, and it also has diseases peculiar to its own geography and mode of life. It would take far less to upset the Japanese health balance than it would ours. Many Europeans lived safely through terrible epidemics of cholera and plague in India thirty years ago, although persons of the same stock died in great numbers when these diseases devastated Europe more than two centuries ago. We cannot overemphasize the importance of good, all-round hygiene as a protection against disease!"

"If the typhoid bacillus is not a good microbe for use in bacterial warfare, what organism would you suggest, Doctor Leyland?"

"A number of years ago a student at the Massachusetts Institute of Technology described the ideal organism for this purpose. It must be quick acting, highly virulent and invasive, and able to attack man through the skin or when inhaled or swallowed. It should not be too contagious, and it should yield to control. It should attack animals as well as man, and it should be available in large quantities in virulent form. Such an agent should possess resistance to destruction by drying, light and other natural factors unfavorable to the life of disease-producing bacteria outside the body of a host."

"Sounds like the anthrax bacillus."

"Yes. Bacillus anthracis answers the description very well."

"Then why don't you feel alarmed about it?"

"We have lived for years in the presence of this ideal bacterial warfare agent, and it has never, so far as I know, been responsible for a major outbreak of disease. There are many mechanical and other difficulties in the way of successful bacterial warfare—despite its theoretical possibilities."

"What about such diseases as influenza, Doctor?"

"That is an interesting point and one on which we can only venture a guess. Twenty-five years ago influenza was a terrible scourge. At that time, however, it spread over the entire world and was about as dangerous to one group as to another. We know much more now about influenza than we did then. But there are points about diseases that many do not take into account as they should. For instance, diseases change. Scarlet fever is getting milder. In Europe, at least, diphtheria has been causing more trouble than it used to. We cannot be sure that influenza and its after-effects will ever again be as severe as they were in the last pandemic. Furthermore, there has to be a certain stage setting for a disease before it will rage in fury. About a year ago influenza broke out in a certain section of this country. There were those who expected it to spread over the entire nation like wildfire, but it didn't. We had the influenza virus and we had persons susceptible to it, but

(*Continued on page 368*)

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WHY CHEESE with PIE?

By GORDON A. SABINE

YOU'VE HAD a grand dinner, complete from soup and now on the way to dessert. The main courses have been cleared, and your choice for dessert is the old-fashioned but ever tasty pie—with cheese.

Why cheese with pie?

Your answer may be that it agrees with your taste. But cheese and pie just naturally go with each other, both on menus and on the charts which record what vitamins and how much of them you're supposed to have every day.

They are made of ingredients which fit into each other the way gears mesh. Let Dr. Conrad Elvehjem, biochemist and nutrition expert at the University of Wisconsin, run down the list:

"Pie is made with white flour," he begins. "That contains vegetable protein, which is supplemented by the cheese protein.

"Flour is low in riboflavin; cheese is rich in riboflavin. Flour is low in calcium, cheese is rich in it. Flour doesn't have very much vitamin A. Cheese packs a lot of the vitamin A."

There's one place cheese is low—vitamin B_1, which is thiamin. If your pie is made with enriched flour, it has the extra thiamin that the cheese lacks.

An inch cube of cheese—cheddar, not the cottage cheese variety—is about an average daily serving, and taken with pie it's an extremely convenient way of getting some of those vitamins about which nutritionists have known for only ten or fifteen years, but which our diets should always have had.

Such a serving, for instance, is a pretty good supply of calcium. Its two thirds of an ounce make up one fifth of the daily calcium requirements of the average adult. That cube of cheese has the equivalent of all the calcium in 5 ounces of milk.

Cheese is powerful in phosphorus, too. It's almost as good in that as in milk, and the average daily serving of two thirds of an ounce of cheese provides as much phosphorus as 5 ounces of milk.

In protein, this much cheese is almost as rich as 5 ounces of milk.

If your pie is made of almost any fruit, you're adding to its richness with vitamin C, in which cheese is low.

Connoisseurs appreciated cheese with pie long before we knew about

how the pair supplied vitamins and minerals. Proof of that is an old cook book, now treasured in a University of Wisconsin library. It was printed more than a century ago. History says it first served the cooking needs of some of the pioneer settlers of America's midwest.

Men knew the taste of good food then, too, so perhaps that accounts for this note on the yellowed and torn pages—after an elaborate pie recipe.

"A bit of cheese served with this pie," it said, "will surely transform it into a gastronomical delicacy no one can refuse."

Why cheese with pie? Well, why not?

Walk Your Way to Health

(Continued from page 349)

position is a combination of the two, neither good nor bad.

What has posture to do with walking? To begin with, you miss half the joys life can offer you if your head is up in the clouds or directed toward the street beneath your feet. Try being comfortably erect, watching and checking on yourself at frequent intervals. If the muscles which control your posture have become a bit stiff and cause unwelcome pains, keep at it; slowly but surely nature will adjust you to your newly found physical position.

Hand in hand with correct posture goes the mileage you may put into your daily walking expeditions. For the beginner, a mile is sufficient. The experienced walker can gracefully stand four times as much. Walkers find that by gradually increasing the scope of their walk at the rate of an additional half mile each week, they are soon able to look a five mile hike in the face without wincing.

Walking expeditions should be made in early morning if possible, just before breakfast. They stimulate the jaded appetite, and after a few weeks a "toned-up" effect will be noticeable. Set the alarm clock at six or seven o'clock and start out firmly to cover the prescribed distance. The average person can finish a three or four mile walking

(Continued on page 381)

"THIS IS EVERYONE'S WAR"

You've read that, and heard that, countless times since the war started.

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Besides useful food-energy, bread furnishes the following important essentials for America's daily diet:

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Another B vitamin—Niacin. The vitamin that aids in the prevention of pellagra.

Iron—the important food-mineral needed to make good red blood and prevent nutritional anemia.

So remember in this war . . . this "everyone's war," the millers and bakers and your own store are ready to serve America with a better, more wholesome, more delicious loaf of bread than ever . . . Enriched White Bread . . . "Everyone's Food."

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Bacterial Warfare

(Continued from page 364)

no grand epidemic resulted. The stage was not set. Just what conditions are needed to set the stage I cannot say, but I strongly suspect good hygiene gives us conditions unsatisfactory for the development of epidemics."

"You certainly believe in good health as a guarantee against bad health, don't you, Professor?"

"As I see it such a conclusion is inevitable, but that isn't the whole story. We are educated enough now in the presence of influenza to avoid crowds, to keep from getting chilled and wet, and to go to bed and call the doctor when we show symptoms. Influenza may break out and make our lot more difficult, but, as I see it, hardly as the result of enemy action. The same is true of meningitis, which is often important in training camps. It has been suggested that a carrier of meningitis might be introduced in our midst as a prisoner of war and so start an epidemic. As a matter of fact, every large aggregation of soldiers already has a number of carriers and one more would not be likely to make much difference."

"What is a carrier?"

"A carrier is a person who harbors disease-producing microbes but who at the time is well. Such persons are especially important in the epidemiology of meningitis of the communicable type and indeed of many other diseases. People are apt to think of all disease-producing microbes as equally invasive. That is not true at all. Bacteria which are capable of causing fatal disease in one man may be living harmlessly on the body of another. They may even have been living on the body of the man made ill for long periods before the circumstance arose conditioning the infection of the blood. The pneumococcus is far from rare in a healthy population, and many more people harbor the tubercle bacillus who are well than who are tuberculous. A few microbes are highly invasive, such as the gonococcus, the organism causing syphilis and the tularemia bacillus, to mention a few. Only a fraction of the persons who drink water containing typhoid bacilli will get typhoid fever, whereas a frank exposure to pneumonic plague results in almost certain illness from that disease. In other words, an epidemic of disease does not necessarily start the instant a few microbes are introduced into the environment!"

"What about the introduction of diseases of animals or plants which might destroy our crops and our animals? Wouldn't that injure us, and isn't it possible?"

"Of course it would injure us, and it might be possible. On the other hand, it takes a long time for such diseases to get going, and our Department of Agriculture has been very efficient in controlling such matters in the past. Also such procedures would violate an old principle of warfare."

"May I ask what principle?"

"The ability of a defeated nation to pay the victors for the beating it has received. If our wealth is destroyed how can we pay? I can understand the reluctance of some of the combatants in the present war with respect to the 'scorched earth' policy. The emergency must be great indeed for one to utterly destroy something valuable which he would ordinarily hope to possess again with the expected turn of battle. So it would be an act of extreme emergency before one nation would loose a pestilence on another nation which would reduce it to destitution—even if such a pestilence were available to be commanded."

"It seems to me that all you have said, Doctor Leyland, depends on one important point."

"What do you mean, Myra?"

"Wouldn't bacterial warfare amount to more for the enemy if the population attacked got all panicky, and paid no attention to the available measures for their protection, and failed to listen to those who could get the situation under control if given a chance?"

"Yes, indeed—one of the most important factors! I think that bacterial warfare is not apt to succeed. At most, its action would be local. But it is certainly true that panic and serious disorders might develop a trivial situation into a disastrous calamity. The orderly use of our known principles of control would be necessary to keep the situation in hand. Anything more you want to know, inquisitor?"

"Yes, there is, and a very important point, too. What can we do to protect the armed forces against disease?"

"I'm glad you put the matter broadly as 'disease' and didn't restrict your question to bacterial warfare. The first thing to do is to be sure that the personnel selected for the services is fit. The men who defend our flag on land, at sea and in the air must be healthy, sound and vital. Then they must be carefully trained and seasoned before they are called upon to undergo the rigors of war. During this time they must be properly fed and housed, protected from the diseases of the present and adequately fortified against the diseases of the furture."

"What do you mean by diseases of the present?"

"Those diseases incident to the bringing together in training camps of large numbers of young men from widely different backgrounds —such maladies as measles, mumps, scarlet fever, diphtheria, pneumonia, influenza, meningitis and the like; and of course venereal diseases are very important."

"What are the diseases of the future?"

"This group includes the epidemic diseases the soldier may meet while campaigning in a foreign country and under the rigorous conditions of the battlefield, such as typhoid, cholera, typhus, smallpox, yellow fever, malaria, dysentery and plague. The venereal diseases are a continual pestilence, and wound infections, tetanus and gas gangrene must be taken care of."

"How does one take care of such things?"

"Where proven vaccines are available, they should be given. Typhoid, smallpox, tetanus, yellow fever, plague and cholera can be protected against in this way. Typhus vaccines should be used, for although still experimental they promise at least to keep the disease mild, if not to effect its actual prevention. Mention of typhus reminds me to emphasize that facilities for cleanliness must closely follow the army, for a corps clean and adequately deloused all the time is a corps protected against the disease that turned back Napoleon! Proper drugs must be available to combat wound infection and such a disease as malaria. The cleanliness and protection of kitchens, sleeping quarters and latrines, and the purity of drinking water and food must be assured. A suitable number of medical officers, nurses and attendants with adequate quarters and equipment must be available, and facilities for transport must be satisfactory. Some provision must be made for research, so that new developments and situations can be promptly and thoroughly followed up. I have omitted some details, but these general provisions should guarantee the health of the armed forces as far as it is possible to do so."

"That just about covers the matter, doesn't it, Chief?"

"Just about. Now back to work."

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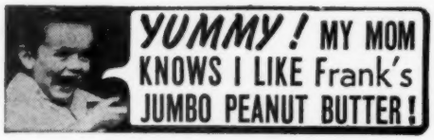

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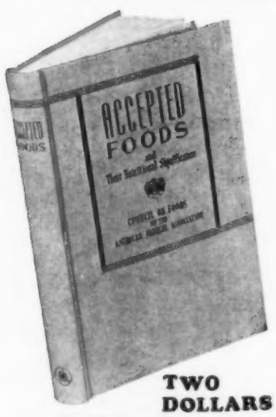

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The Nurse in Industry

(*Continued from page 340*)

After establishing friendly relations with workers' wives, the nurse may be responsible for introducing information on diet and food preparation, pamphlets on vitamins and calories, on home canning and budgeting. But this part of her work is dependent on the policy of the management, as some executives prefer to have the nurse confine her work to the plant.

The plant bulletin board is one place where industrial nurses have made their influence felt. One nurse put aside a half hour each morning to working on her bulletin, clipping items, arranging colorful displays. Her work has been so clever that the "Health Slate," as it is called, is a center of interest during lunch hours and rest periods. She admits quite frankly that she employs all the arts of propaganda known to her in this health education work. She frequently offers pamphlets and bulletins free to those who will stop in her office to get them, and the demand is proof of the number of men and women who read the "Health Slate" regularly.

Within the factory itself, the industrial nurse may work with a dietitian on menus for the plant cafeteria or lunchrooms.

In some factories, nurses have been instrumental in having rest periods established. The industrial nurse may be asked to assist efficiency experts in time and motion studies.

An industrial nurse in one large plant has had remarkable success with "bars." Her milk bars have had added popularity because she has decorated a two wheeled cart and installed a "milk maid" to tend it. This same nurse has popularized bars where fruit juice and graham crackers are sold for a few cents.

In addition to these duties, the industrial nurse has the more prosaic tasks which involve first aid and treatment of injuries. With the speed-up of the war program, accidents are on the increase, and this work may take up a good part of her day. If she is assisting a doctor, her day may be a very busy one.

She may help with regular physical examinations of applicants for work and those already employed. She will find herself cooperating with the dentists to whom the workers are referred. She may discover that she is a sort of doctor's secretary and keeper of medical files as well as nurse. Her preventive work may also mean that she is cooperating with the safety engineer in eliminating hazards and carrying on a campaign for safe working practices. In the factory, if recreational facilities are provided, she may find other duties.

The nurse who turns to industry as a vocation can lead a full life, full of professional satisfaction. She can make herself indispensable to efficient operation of the factory. As such she can command a good salary. She may find herself the important link between executive and employee groups. Her position will be difficult at times, but it will give her insight into the problems of both forces, labor and management. She may work slowly, but she will work surely toward better understanding between worker and employer. In any event, the "lady in white" is becoming an increasingly important figure on the industrial horizon.

SEVERE ADVANCED ACUTE APPENDICITIS

Sulfathiazole, a derivative of sulfanilamide, is an effective adjunct to surgery in cases of severe advanced acute appendicitis, Robert K. Anderson, Chicago, reports in *The Journal of the American Medical Association* in a conclusion based on results obtained in a series of 22 patients with advanced disease of the appendix who were treated by removal of the latter and with sulfathiazole medication.

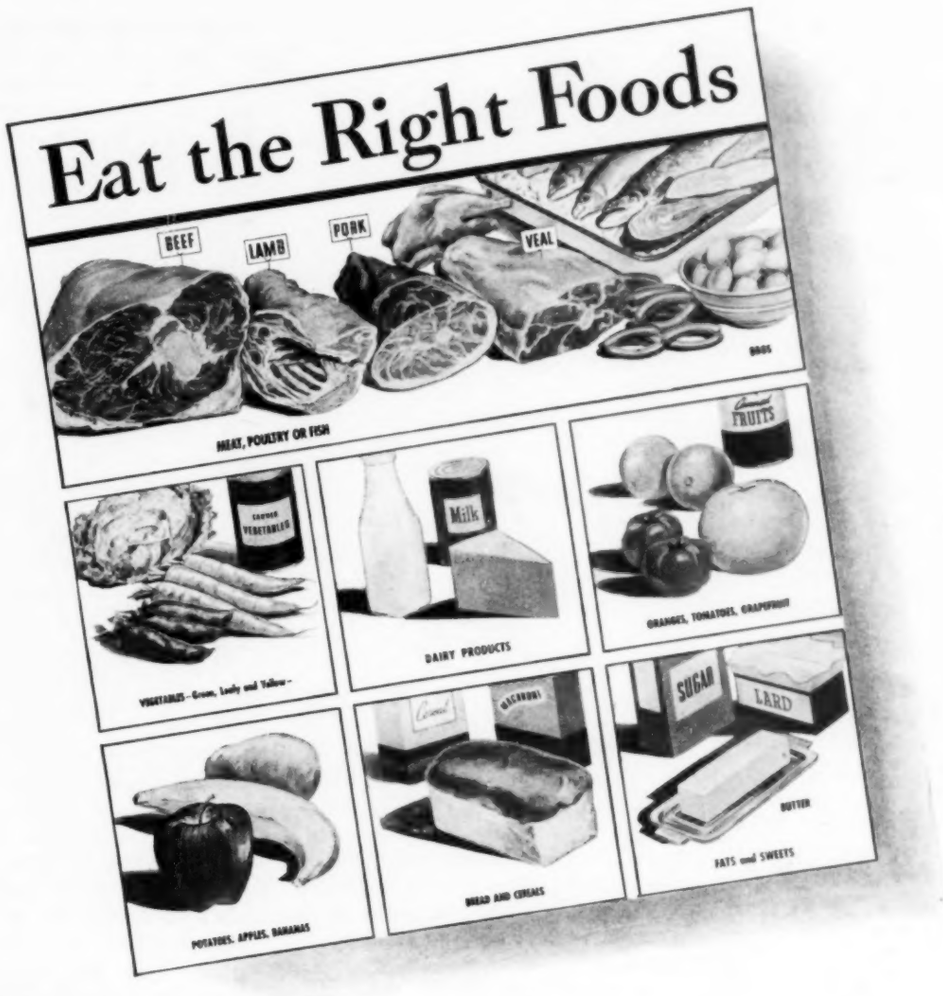

Chart Based on U. S. Government's Guide to Good Nutrition.

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MEAT, POULTRY OR FISH—one or more servings daily.
EGGS—at least 3 or 4 a week, cooked any way you choose or in "made" dishes.
VEGETABLES—Green, Leafy and Yellow—one big helping or more a day—some raw, some cooked or canned.
MILK—at least a pint a day (more for children) — or cheese or evaporated or dried milk.
ORANGES, TOMATOES, GRAPEFRUIT—one of these at least once a day.
POTATOES, APPLES, BANANAS—or other vegetables or fruits every day.
BREAD AND CEREAL—enriched bread, enriched flour, whole grain products, macaroni, spaghetti.
FATS, SWEETS and seasonings as you like them.

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Better national health will hasten victory for America. To this end your government has specified the foods which should be eaten daily and in sufficient amounts to assure freedom from nutritional deficiency and to promote greater stamina and better resistance to many diseases. Follow this chart . . . use it every day in planning the meals for your family. Notice the specification for one or more servings of meat, poultry or fish every day. The reason for this recommendation is that all meats, including the thriftier cuts, supply complete, high quality proteins, B vitamins, and the essential minerals iron, copper, and phosphorus.

For "Quick Lesson in Good Nutrition," based on chart, send self-addressed stamped envelope to PR Dept., American Meat Institute, 59 East Van Buren Street, Chicago.

American Meat Institute
CHICAGO

The Tuberculin Test in Tuberculosis Prevention

(Continued from page 356)

been overreading—reporting reactions when they really do not exist. The degree of reaction is not an indication of extent of disease; it suffices to record that the subject reacts or does not react to tuberculin. A second dose of tuberculin should be administered to those who fail to react or whose reaction is questionable. The interpretation should be made at the same interval and in the same manner as in the first test. When no reaction occurs to the second dose, there usually are no living tubercle bacilli in the body.

The tuberculin test fails to reveal the presence of tubercle bacilli in the human body for the first three to seven weeks after they enter. During this period, there is no examination of the human body that will detect the presence of tuberculosis. Occasionally the test fails in persons who are overwhelmed by tuberculosis and are approaching death. Apparently, there is so much disease present that the tissues are desensitized and the test becomes useless. In some persons who have had tuberculosis, all tubercle bacilli die, and although evidence such as deposits of scar tissue and lime may remain, the tissues lose their sensitivity to tuberculin. Rarely do persons who have tuberculosis fail to react to tuberculin when properly administered. When there is no reaction to tuberculin, and tubercle bacilli cannot be found, one is never justified in making a diagnosis of tuberculosis.

Extremely important facts are gained from the tuberculin test. In the first place, if it has been properly administered and there is no reaction, it is excellent evidence that there are no living tubercle bacilli in the body. When a reaction is present, it indicates with a high degree of certainty that living tubercle bacilli are present. It is a test only for sensitivity to tuberculoprotein, and as far as is known there is nothing in nature taken into the body capable of producing and maintaining this sensitivity except living tubercle bacilli. Because it is only persons who have tubercle bacilli in their bodies who develop clinical tuberculosis, and since this disease is usually so slow and insidious in its development, every person who reacts to tuberculin, regardless of age, must be examined periodically for clinical forms of tuberculosis.

Every reactor to tuberculin has been in contact either directly or indirectly with a person who has tuberculosis in the contagious stage. Formerly, many tuberculin reactions in man were due to the bovine type of tubercle bacillus, but the veterinarians and their allies have so nearly eradicated tuberculosis from cattle in this country that a human being rarely becomes infected with the bovine type of tubercle bacillus. Other domestic animals, such as sheep, goats, horses and swine, develop tuberculosis which may be transmitted to man. However, veterinarians have done much to prevent this source of infection. Pets such as dogs, cats and even parrots become tuberculous and may transmit the disease to man. Therefore, a tuberculin reaction provides invaluable information, for it furnishes the trail by which one may often trace the previously unknown and wholly unsuspected sources of infections.

There is no test in the entire field of human and animal medicine that has been so extensively employed, with results so carefully checked by postmortem examination, as the tuberculin test. Among animals it has been used throughout the world since 1892, and in the United States alone between 1917 and 1939 more than 229,000,000 tests have been administered to cattle and more than 3,700,000 reactors have been slaughtered and examined with irrefutable proof of the specificity of this test. It is the tuberculin test that has made possible almost complete eradication of tuberculosis from the cattle herds of this country; it is the tuberculin test that has put an end to the great destruction of laboratory animals, particularly monkeys; it is the tuberculin test that is now finding unsuspected cases of tuberculosis in large numbers of human beings, many of whom are having their disease detected before any other evidence is obtainable.

Tuberculin testing has been placed on a practical basis in the last few years, largely through the pioneer work of Dr. Sidney Alexander Slater.

Dr. Slater was born in Virginia in 1884 and reared on a farm in King William County, 25 miles north of Richmond. He was a farm boy who spent most of his waking hours, except for those at school, in the open. He attended a little country school of one room.

When Sidney Slater was 17 he entered Richmond College, then a relatively small school with about 350 students; later the college was incorporated as Richmond University. He received the B.A. degree in 1907 and the M.D. in 1909 from the Medical College of Virginia, having taken some of his medical work while still an undergraduate. After graduation he obtained a position as contract physician for coal mines in a mining settlement in West Virginia. He did surgery in the town and had a small medical practice in the mountains surrounding the mining community.

He was making a good start at his chosen career of surgery when a breakdown with tuberculosis sent him to bed in 1912. He spent most of that year in a private sanatorium but also worked part time in the Virginia State Sanatorium. Under another doctor's direction he examined patients, and while still a patient himself he took charge of the sanatorium while the medical director was away. In 1913 he came north to Oil City, Pa., as head of the Grandview Sanatorium, a position which he held for six years. Dr. Slater comments that sanatorium treatment has changed a great deal since that time; bed rest, for instance, although considered an important therapeutic measure, was not as strictly enforced as it is today. Since 1919, Dr. Slater has been superintendent and medical director of the Southwestern Minnesota Sanatorium at Worthington, Minn.

(Continued on page 378)

Whenever Medicine Finds a Better Way . . .

Long ago your doctor learned that while the fundamentals of medicine change slowly, better methods for the diagnosis and treatment of disease are constantly being developed.

At the hospitals in his community he takes part in meetings, discussions and clinical conferences where he and his fellow physicians share their medical experience. He may also take university extension courses, or attend a continuation school of medicine, to profit by the teaching of specialists highly trained in the newest techniques of medicine.

At the regular sessions of the various professional societies to which he belongs, he listens to medical papers written by his colleagues—he may write one himself occasionally. Timely and authentic articles in the medical journals to which he subscribes are of the utmost value to him.

It is this interest in his profession, this zeal in keeping up to date his own skills and techniques, that make your doctor the one person whose advice and counsel you should seek in all matters pertaining to health.

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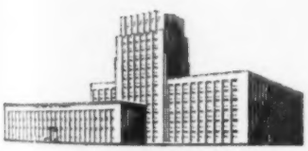

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QUESTIONS AND *Answers*

Tuberculosis

To the Editor:—(1) How can a person with definite tuberculosis who does not cough and has little expectoration have a positive sputum?

(2) Is the fact that some days a patient may not raise much compared with other days of any significance?

(3) I have heard that it is practically impossible for a patient with cavities and numerous soft lesions on both sides to recover without changing in any way his mode of life.

(4) Can you explain the fact that an x-ray shows further involvement while the patient's appearance remains good, and there has been no further loss of weight—all without really resting?

These are a few of the things we find very puzzling. We do not ask out of idle curiosity, but because we have a real desire to learn more about this disease.

A. P., Connecticut.

Answer.—(1) The positive sputum in that situation may be due to several causes: (a) A relatively dry cavity with a heavy fibroid wall and healing from within; (b) a close bronchus with bacilli leaking through; (c) a closed bronchus with ulcers in the bronchi or trachea; (d) a fistula into the bronchi from an old ruptured lymph node.

(2) Not especially. It may be due to an accumulation of fluid in a valvular cavity, and only at a certain level may the contents be evacuated. Or, as most commonly occurs, it may be due to emotional stress or slight infections of the respiratory tract.

(3) "Few things are impossible in tuberculosis, but not all things expedient." There are instances where severely ill and foolish patients have violated practically every rule and appeared to be "getting away with it." On the other hand, there are less severely ill patients who go on and die in spite of perfect care and obedience. In between these two extremes there are the great majority that may be benefitted by the many new treatment measures given by well trained physicians. The explanation is that nobody knows all the underlying pathology, bacteriology and immunity of every patient. In the fatal type bacilli are probably numerous and virulent and the patient probably a "susceptible" type, while in the other the opposite conditions prevail. Doctors generally take age, race, sex, and character of lesion into consideration, but even then miracles seem to happen, which means we haven't yet reached complete knowledge under any and all circumstances. The wise patient will follow orders given by the doctor as a hunter will follow his guide's direction to get out of the woods. The advice of the physician should be followed because he knows what is true in the great majority of cases and his advice is *always safe*.

(4) Under certain conditions cavities will insidiously spread by wearing away or ulcerating the wall from within faster than nature can rebuild it, and still the patient may appear to be doing well. This favorable condition is only apparent, or at the most temporary. If a cavity is progressing, it means that the treatment is inadequate to meet the needs, irrespective of the outward appearance of the patient.

If rest treatment will not stop it, and perhaps under all circumstances, lung surgery should be used.

Why People Drink

To the Editor:—I would like to have some information along the line of why people drink alcohol.

L. S., Kentucky.

Answer.—Why men drink alcohol is a question that has baffled moralists, scientists and philosophers for many years. The modern explanation is seldom acceptable to those who believe in temperance education of the "ten nights in a barroom" class: the idea of scaring people so they no longer want to drink. Largely discredited, also, is the theory of an unquenchable appetite for alcohol.

One of the modern theories and perhaps the one most widely accepted is that some persons seek escape from reality in alcohol, just as others seek it in hobbies, social service, reform, certain forms of exaggerated religious zeal, narcotic drugs other than alcohol, or in extreme cases mental disease. In other words, alcoholism is a manifestation of a psychologic illness.

Usually the alcoholic is a frustrated person. For some reason, not always clear, he may be unable to achieve a satisfactory adjustment to life. He—or for that matter, she—may be married to an overwhelmingly dominating personality or may be afflicted with poverty, disease, inability to make friends, incapacity for satisfactory achievement, or other cause of deep-seated psychologic discontent. It is important to know that seldom or never does the alcoholic recognize the cause. When it is pointed out to him, he frequently fails or refuses to accept the explanation.

The psychologic factors in alcoholism probably account for the success of the organization known as "Alcoholics Anonymous," which can be addressed at Works Publishing Company, New York. This had a good deal of publicity in newspapers, and articles about it appeared in the *Saturday Evening Post* for March 1, 1941, *Newsweek* for Feb. 19, 1940, *Time* for Feb. 19, 1940, and *Scribner's Commentator* for January 1941. In brief, the program of Alcoholics Anonymous is to make friends with the alcoholic

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We think that you will come to prefer Arm & Hammer, or Cow Brand, Baking Soda to any dentifrice you have ever used after you have tried it for just a short while; that you will like its pleasantly clean after-taste and find that it aids the brush in restoring the natural color of your teeth.

These qualities, plus its extremely low cost, recommend our Baking Soda to a permanent place in your medicine cabinet where it will be convenient for all the family to use regularly as their teeth cleanser.

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through the medium of persons who have been in the same fix themselves and have successfully overcome their handicap.

Obviously there is no point in teaching about the evils of alcohol as a drug to persons who already have developed alcoholism as a habit. In teaching young persons, it is best not to dwell on the more spectacular phases of drunkenness, but on the fact that alcohol is a narcotic drug which reduces efficiency even while it gives a false sense of achievement. At the same time, in moderation alcohol may be socially and personally beneficial to those who can be sure that they can achieve and maintain moderation. The greatest single argument against the use of alcohol, aside from the efficiency phase, is that one cannot predict with accuracy which person can use alcohol moderately and which one cannot. In general, however, it may be said that persons with unstable emotions and extreme nervous reactions are most likely to become addicted to the excessive use of alcohol.

We recommend the little manual "Alcohol—Its Effects on Man" by Haven Emerson, M.D., published by D. Appleton-Century Company, New York, and priced at $1.00.

White Teeth and Chewing Gum

To the Editor:—It was put to discussion in our General Science Class whether chewing gum benefits the whitening of teeth. On some gum wrappers this is stated as fact. We would appreciate it if you would clear this point for us.

S. D., Michigan.

Answer.—The natural color of the teeth is not white as is commonly supposed but varies from a pale ivory to a more or less definite "cream." The properties of the teeth which determine their natural shade do not reside in the surface layer of the enamel. Therefore, it is not an easy matter to change the color of the teeth. Sometimes this is done by the dentist, but he must use strong agents, such as 30 per cent hydrogen peroxide, which cannot be employed by the layman with safety. The phrase "whitening the teeth" as applied to cosmetic agents such as dentifrices should be replaced by the phrase "cleaning the teeth." In other words, dentifrices may aid the toothbrush in removing stains on the surface of the teeth. In other cases, however, the stains may be so stubborn as to require the services of the dentist.

So far as is known, it has not been established that chewing gum is of practical value in cleaning the teeth. Certainly it does not "whiten the teeth" in the proper sense of that phrase. In commenting on one brand of chewing gum the Council on Dental Therapeutics of the American Dental Association stated: "It is possible that chewing gum may remove food particles that are suspended in saliva, but the efficacy of chewing gum to remove food particles which adhere to the teeth has not been demonstrated by carefully controlled evidence."

Enforced Medication

To the Editor:—A doctor prescribed a bitter iron tonic for a child 2 years of age to be given in dosage of 1 teaspoon three times a day, and the child refused to take it except by force. The child, screaming and fighting, was held down and the bitter medicine dumped into its mouth. Would the physiologic benefits to the child be offset by the bad psychologic effects it would have on a child who was already very nervous and easily upset and anemic?

M. J. S., Wisconsin.

Answer.—Regardless of difficulties in its administration, the iron, if retained, is of physiologic benefit to the anemic patient. It is doubtful, however, that the tonic will be effective as a stimulant to appetite under the circumstances described by the inquirer.

This question raises the problem of medication for children. Basically it is a problem of discipline. As a rule, a child will accept willingly even if not enthusiastically any mixture that is prescribed, once it is convinced that the mother is determined to go through with it. Where the mother is oversolicitous and overindulgent, refusal becomes the rule. Too many parents predict defeat in this respect. The child knows it and takes full advantage.

After he has swallowed the first dose, nurses seldom experience difficulty in administering medicine to the "nervous" child. The child knows that he has to take it. He quickly comprehends the meaning of firmness and behaves accordingly.

The subject of this question is no doubt a bright child who thrives on maternal worry. The bitter potion which he steadfastly rejects (and who can blame him for it?) is only one of many items on his "no, no," list. This disposition, it may also be surmised, is probably responsible for his nervousness, his loss of appetite and his anemia.

The advisability of continuing to force medication of this type must be left to the judgment of the physician who knows the needs of the individual child. The mother should not let her sympathy interfere with the baby's recovery. Gentleness combined with firmness may soon obviate the necessity for administering the iron in the bitter vehicle. If the child begins to eat the regular foods prescribed for his age, there will be enough minerals to satisfy his physiologic requirements.

Operation for High Blood Pressure

To the Editor:—I have been advised to have a sympathectomy performed for high blood pressure.

Is there at the present time any medicine that may take the place of this surgery? What effects may I expect after the operation has been performed? Will it hinder my physical ability in years to come?

J. M., Illinois.

Answer.—The surgical operation for essential hypertension has not yet stood the test of time. For a reasonable period at least, however, sympathectomy appears to yield the maximum results of any treatment. Following operation, patients must continue to use the same precautions regarding blood pressure as they had used previously.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Increasing Efficiency of Hospitals

The constantly increasing efficiency of hospitals in this country is revealed in the twenty-first annual census of hospitals by the Council on Medical Education and Hospitals of the American Medical Association, published in *The Journal* of the Association. The census shows that "The average stay per patient in general hospitals has been reduced from fourteen days in 1935 to twelve days in 1941, an average saving of two days per patient. For all the 10,646,947 patients in general hospitals in 1941 the aggregate saving was 58,339 years. Figuring this saving at $4 a day, the cost of hospitalization for each patient admitted was $8 less than it would have been in 1935, the equivalent of a saving of $85,175,576 in hospitalization costs."

During the period from 1935 through 1941 the length of stay in governmental general hospitals dropped from twenty-two to eighteen days and in nongovernmental general hospitals from eleven to ten days. In general hospitals operated under federal auspices a reduction from thirty-six to twenty-one days was made, in those under state auspices from twenty-one to eighteen days, in county hospitals from twenty to eighteen days, in city hospitals from sixteen to fifteen days and in city-county hospitals from seventeen to twelve days. In church related hospitals the average stay dropped from twelve to ten days in the same period and in all nonprofit association hospitals from eleven to ten days. In hospitals operated and owned by individuals and partnerships the rate remained stationary at eight days. In those operated by corporations for profit it dropped from nine to eight days.

The census discloses a total of 6,358 registered hospitals, an increase of 67 over the number on the Register one year ago. The growth of hospital facilities for the past year was the equivalent of one 269 bed hospital for every day, Sundays and holidays included.

The capacity of registered hospitals amounts to 1,324,381 beds and 66,163 bassinets. There are 98,136 more beds and 4,224 more bassinets than there were a year ago.

Your Radio Favorites Portray

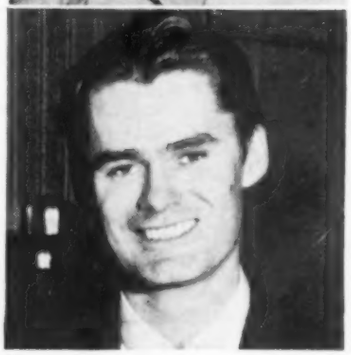
DOCTORS AT WORK

Experienced radio actors and actresses play the parts of your favorite characters in DOCTORS AT WORK, weekly broadcast presented by the American Medical Association and the National Broadcasting Company.

ED PRENTISS, who plays DR. TOM RIGGS, is a native born Chicagoan. He's had extensive experience in radio—announcing and taking part in well known NBC programs. His hobby is collecting sculptured dogs.

BETTY RUTH SMITH, who plays Tom's wife, ALICE, came from Wichita, Kan., where she gained her first experience in radio acting, writing and miscellaneous broadcasting chores. Favorite pastime: doing landscapes and portraits in water colors.

ELOISE KUMMER, who plays the cool and competent public health nurse, JOAN SHERMAN, is a native of Wisconsin—where she hopes some day to retire to a farm. Meantime, she performs for DOCTORS AT WORK and other NBC shows.



JOHN LARKIN is the temperamental young physician, DR. PAUL GERARD. He's a Californian who serves as announcer and actor on many programs.

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NONSPI does not smart or sting. One application is effective for one to three days. Easily applied. Acts and dries quickly. Used properly, it does not harm skin or clothing.
10¢ brings you a generous trial size of Liquid Nonspi. Write the Nonspi Co., 113B West 18th Street, New York City.
NONSPI
Liquid • Cream
NO PERSPIRATION — NO ODOR

The Tuberculin Test in Tuberculosis Prevention

(Continued from page 372)

In addition to his work at the Sanatorium, Dr. Slater goes into the nine counties of his sanatorium district, gives lectures to the medical and nursing professions and public lectures in schools, churches and town halls to inform people how to free themselves of tuberculosis. Thoroughly convinced of the accuracy of the tuberculin test, he examined more than 1,600 girls and boys in rural schools and found that only 11 per cent reacted. The result of this work was presented before a large national audience in Atlanta, Ga., in 1924. At the Atlanta meeting there were a number of persons who returned to their home communities determined to test children with tuberculin to see whether it was really true that nearly 100 per cent were infected, as it had always been widely supposed, or whether their tuberculosis work had been effective and the result was already being reflected in the reduced number of infections among children. To nearly every community came the happy surprise of finding that large numbers of children were not reactors. Thus for the first time there was tangible evidence of the effectiveness of the tuberculosis control program in this country. Nearly every one took heart anew, for it was now obvious that the methods already in use were capable of reducing tuberculosis to a minor disease in this country, as had already been done with typhoid fever. Moreover, by testing the children of a community every five to ten years and checking on the decrease in reactors, they could determine just how much they had accomplished in tuberculosis control. The number of infected persons in any community is the only true criterion of the tuberculosis problem.

Dr. Slater's work did not end with finding children who reacted to tuberculin. He wanted to know where the persons with contagious disease who were responsible for the infections were located; he went to the homes and examined the parents, grandparents, farm hands, maids and all other adults known to have been in contact with these children. He was not forgetful of the fact that a good many hours of each day were spent in school, so teachers, bus drivers and all other members of the school personnel were included in his examinations. Throughout all of his work, he has been mindful of the importance of the family physician. Cooperation with family physicians throughout his sanatorium district has contributed importantly to the success of the tuberculosis program there.

In 1938 all the children, including high school students, and teachers of an entire county in this district were tested with tuberculin; only 5.2 per cent reacted. Moreover, in that county the mortality rate for tuberculosis is only 5.5 per hundred thousand of population per year. Slater is far from satisfied even with these figures, as he visualizes the district with only a small fraction of 1 per cent of the children infected with tubercle bacilli and no deaths from tuberculosis at any age. All that is necessary to realize this vision is the continuation of his work.

A car drives up in the yard outside a country schoolhouse, and a little flurry of excitement goes over the schoolroom—the doctor has come! The children know the doctor—he has been there many times before—and they are always glad to see him. Following the teacher's instruction, the children file down the length of the corridor outside the room, at one end of which has been arranged a table, a couple of chairs, notebooks, a bottle or two of antiseptic and a small medical kit. The children are not at all timid, and the small boys roll up their sleeves with a pugnacious gesture for the doctor's needle. The nurse who has come with the doctor scrubs a spot on each bared forearm with a piece of cotton, then the doctor makes a tiny prick with his needle, leaving a drop or two

(Continued on page 397)

Are You Going to Die of Cancer?

(Continued from page 353)

It now becomes even more apparent why early detection of cancer is essential, because, strange as it may seem, the severe types may not produce early symptoms any more violent than the milder types. The trained specialist is the only man who can tell you which length of straw you have pulled from the hat. In a well organized surgical department the pathologist works hand in hand with the surgeon. A piece of tissue is removed by the surgeon and immediately examined under the microscope by the pathologist. Like a modern version of the ancient crystal gazer the pathologist can foresee, and here with truth, the future of the patient. Within two or three minutes he makes his report to the surgeon, and the latter uses this information in deciding whether operation is necessary and what operation is best.

Cancer is more frequent among women than among men, due to its common occurrence in the uterus and the breasts. In men the most likely spot for cancer to strike is the stomach. The location is, of course, one of the factors affecting the outlook, because certain areas are more inacessible, more vital, or closer to vital organs than other areas.

It might be interesting to pause for a moment and look back on the history of cancer and its prevalence. The English word "cancer" comes from the Latin word meaning "crab." The Romans used the word also to name this disease, with which they were familiar. The same malady was known to the Egyptians and is mentioned in the earliest writings of India. Birds, animals and fish, as well as man, have cancer. It occurred among the most primitive types, and all the present races of man are affected by it, although it is apparently more common among the civilized races, whose average life is longer.

Though babies are sometimes born with it, it is largely a disease of adult life, and the most dangerous age, according to a 1940

Man's Beauty Problem

Man's "beauty problem" is chiefly concerned with hair—that is, the hair on his head, which he hopes to retain*, and the hair on his face, which he wishes to remove with a maximum of comfort and a minimum of time and effort. . . . Everything in the Luzier line, with the exception of makeup preparations, is suitable *for him.* Our Hair & Scalp Service, Body Service, and Manicure & Hand Service are offered *to him* without fear of an affront to his masculinity. Men whose skins are sensitive frequently use lubricating creams and emollient lotions; and don't for one moment think it is "sissy" for a man to use an appropriate Cologne—one with a fresh, clean (not sweet) fragrance, such as *Luzier's Reveille.* . . . There are few things among his personal belongings that a man prizes more highly than a good sharp razor. It is essential to a quick, smooth, pleasant shave. Preparations to facilitate the use of the razor are of equal importance. . . . We manufacture three preparations especially *for him:* Shaving Cream (brushless variety), After-Shaving Lotion, and Face Powder for Men. Our Service Kit and Men's Travel Case make especially nice gifts for the lads in the services and for those busy business men who today are traveling far and wide in the interests of our country.

**While we sympathize with man's desire to retain his hair, we regret we have nothing to offer him for this purpose.*

Luzier's Inc., Makers of Fine Cosmetics & Perfumes

KANSAS CITY, MO.

A real joy to wear! — because Astarte Elastic Stockings combine *beauty* and *flawless fit* with *genuine comfort*. You'll welcome the quick relief they afford in conditions of surface varicose veins and tired, aching, swollen limbs. Light in weight, cool, comfortable — the 2-way stretch assures gentle "just right" pressure! Smooth-fitting as a glove and inconspicuous beneath finest dress hose. They conceal hair and varicose veins, and shape even the normal limb to more graceful lines. Now offered in Military Beige — the most important neutral of the season, providing a superb background for accessories in any color. Astarte hose are also made in knee length for men.

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- Full-fashioned by hand!

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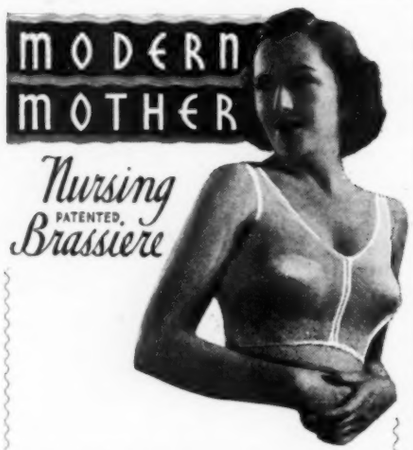

MODERN-MOTHER Nursing Brassiere protects because its sterilized, interchangeable pads absorb milk seepage and keep the breast sweet and wholesome. They are nonirritating and forestall the chance of infection. Scientificially designed, MODERN-MOTHER is not bulky, has an unusual uplift that supports milk-heavy breasts and relieves overstrained muscles.

- Maternity Brassiere, #627 has adjustable elastic back section to allow for increasing development during pregnancy as well as all the features of regular Nursing Brassiere. Sizes 32 to 44. $3.00.
- Bandeau Style, #628 for slender figures in sizes 32 to 38. $2.00.
- Regular Style, #623. Sizes 32 to 44. $2.50.
- Streamlined Style, #629 has added sleekness, greater uplift and none of the familiar "harness" effect. Full cup shape and adjustable straps and back. Sizes 32 to 40. $2.25.

VENUS CORPORATION

1170 Broadway New York, N. Y.
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Summary of Vital Statistics in Washington, is between 65 and 69. In the United States, 22,726 people between those ages died of cancer in 1940. The toll was second only to diseases of the heart. In all age groups, 153,800 people died of cancer in the United States in 1939, and 158,339 in 1940. This is about 10 per cent of the total deaths from all causes for that period and is exceeded only by heart disease. Deaths in the United States caused by cancer per 100,000 of population increased from 63 in 1900 to 120 in 1940—almost double.

How can this be, if we are, as we say, gaining in our fight against cancer? There are at least two reasons why this can be so: first, because cancer is recognized now where in years past it was not discovered. Many people have died without ever knowing that the disease they had was cancer; therefore, the real deaths from cancer may be decreasing even though apparently they are increasing. The second reason is that, due to the advances in medical science, people are living longer, and thus more people live to die of cancer now than formerly.

If we look at the few records available back in the beginning of the century we find that practically all patients seen with cancer were soon dead, no matter what was done. Indeed, they were so far gone when first seen that it was an achievement to bring a patient alive through an operation. But the medical profession, with undaunted courage and determination, would not call it a hopeless cause. Gradually, doctors learned how to recognize the presence of cancer earlier, where to look for its extension in the body for eradication, and how to remove the growth successfully without losing the patient in the process. They are not satisfied with their present results by any means, and fortunately so, for with dissatisfaction comes progress. Every physician in the United States is conscious of cancer, puzzling over it, trying to put two and "x" together. Singly and in groups they go over the problem, studying it from various angles, groping in the dark and in the dim light. The American College of Surgeons regularly maintains a staff of medical men who advise and assist in the establishment of cancer clinics and inspect clinics that are already established.

The United States Public Health Service has recently built a beautiful building in Bethesda, Md., just outside Washington, which houses the National Cancer Institute. It is a laboratory building in which research in cancer is constantly being carried on by doctors in the Public Health Service. Four times a year a small group of men who are particularly interested in cancer and who have made contributions to the study of the disease from many different angles gather here from all over the United States. They are called The National Advisory Cancer Council, and they strive to organize the fight in such a way that the great resources and energy available in the medical profession and the United States Public Health Service are used to the best advantage and with as little duplication and wasted effort as possible.

To get relevant statistics on the real progress made one must follow the results in particular groups of patients who have had treatment. This can be done only where continuous records have been kept for a long time. Table 2 shows such results, in terms of "five year cures," for patients treated thirty years ago and in subsequent years.

Since early discovery and treatment are essential for arresting a cancerous growth, the problem concerns both doctor and patient. For the doctor, early cancer may be difficult to diagnose. The symptoms are often vague, dissimilar, mild—even trivial. There may be no acute pain at first to compel attention and action. The busy doctor must be constantly on guard lest he brush aside such symptoms as of minor importance and occupy himself with more pressing matters. Even after he has used all the instruments at his command to help him in his diagnosis, the x-ray, the fluoroscope and any other mechanical aids he may have, he himself must have the training, experience and judgment necessary to analyze his findings and advise wisely.

The second problem concerns the patient. Here the important question is, "What are the signs and symptoms which may indicate cancer?" The following list of symptoms is taken from a pamphlet printed by the American Society for the Control of Cancer.

Mouth, Lip and Tongue: Any sore that does not heal within ten days to two weeks. Any lump or

local thickening. On the tongue, persistent white areas, especially in the case of smokers.

Throat: Difficulty in swallowing or hoarseness lasting for more than two weeks which cannot be explained by a cold or other direct cause.

Stomach and Intestines: Distress following eating, especially in those of middle age or older who have not been aware previously of such a condition. Sudden or marked loss of weight without any recognized cause. Distaste for meat. Alternate periods of constipation and diarrhea with no particular change in diet to account for it. In the case of the lower intestine or rectum, the appearance of blood as a rectal discharge or in the stools.

Breast: Any lump, lack of symmetry, persistent soreness of the breast or colored discharge from the nipple.

Uterus: Any irregular bleeding at any time during life.

Skin: Any lump, or sore that does not heal in ten days to two weeks. Any mole, wart, or wen which develops tenderness, changes its texture, or begins to grow.

Many of these conditions will turn out not to be cancer, but only a careful physical examination by a doctor, checked by a microscopic examination, can determine the difference. Nature has no patience with those who are careless with cancer.

My worry is not for the neurasthenic man or woman, for they have fled to the doctor's office long since. But the danger threatens all those others who "grin and bear it," who have long since ceased to worry or complain about every ache and pain, who know that life is not a bed of roses and that many things must be borne in silence. Perhaps for many years they have suffered from some chronic ailment or other—an allergy to certain foods, an irritable colon, or just a "weak stomach." This condition they have accepted long since as their lot in life, and when the new symptoms appear, these may be so similar to the old as to be indistinguishable. Or the new symptoms may be accepted as expected signs of advancing age—certainly not matters to bother a busy doctor about! My worry is that virtue, patience and fortitude may recoil on their owners and strike them down. Only by being informed and on the alert can we hold the first line of defense against cancer. Some of us will and some of us won't, and thus do we, the people, live and die and get made into statistics.

Walk Your Way to Health

(*Continued from page 367*)

tour in a little more than an hour at the most, which means that you will reach home in time for a satisfying breakfast.

If it is impossible to walk in the early morning hours, the next best walking time is late afternoon, at four or five o'clock, when the sun is fading and its heat is no longer severe. Where you walk doesn't really matter; the important thing is to set yourself in motion at a regular time each day. Regular hours for the hike are essential until walking becomes a fixed habit, unbreakable and enjoyable.

Every Saturday or Sunday afternoon may be made a family hiking occasion, with the youngsters and the rest of the family journeying to a not too distant park or mountain. A picnic lunch packed on the back will add to the enjoyment of such weekend festivities. Boys and girls who learn to walk while young will not dread it when approaching manhood or womanhood. No matter how enthusiastic a sports fan your youngster is, he may be expected at first to shy away from anything as simple as walking—so don't be backward about inviting your younger members and their friends along for the day.

On your expedition, you will notice many curiosities of nature, some new, others familiar, but all keeping your mind attentive and free of the daily wear and tear so common in our complex modern lives. By all means, take a walk—today and every day!

ARE YOU THIS BALD?

★Below—The same man wearing a patented MAX FACTOR HAIRPIECE

IF YOU WANT to overcome your unsightly baldness with a good-looking, full head of hair, by all means investigate an undetectable Max Factor Hairpiece.

HAIR AGAIN in place of baldness! Hair that looks and feels as if it were actually growing on your own head! That will be your everyday experience when you wear one of these remarkable, patented Hairpieces. So don't delay longer.

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The President asks You

to IMMUNIZE your Children

ROPER* survey reveals WIDESPREAD FAILURE of American mothers to safeguard their children against Smallpox and Diphtheria

TODAY, in this war crisis, immunization is more important than ever before—so vital that the President of the United States in a recent Proclamation asked that . . ."all children over 9 months of age be immunized against SMALLPOX and DIPHTHERIA by May 1st."

Have you had your children immunized against these diseases yet? If you haven't, *you should do so immediately.*

☆

In a recent, nationwide Roper survey, 50% of all mothers with children under 5 years report they have never had a single child vaccinated against SMALLPOX!

Moreover, 34% of these mothers say not a single one of their children has been inoculated against DIPHTHERIA!

Unfortunately many mothers mistakenly believe these diseases are virtually extinct

The facts show *more cases of smallpox are reported by the United States than any other country, except India!* And yet protection against smallpox is open to all who go to a physician for vaccination—a safe, simple procedure which takes only a few minutes.

Diphtheria has been decreasing—*but in the past 10 years at least 392,000 people in the United States were stricken with diphtheria . . . nearly one of every 10 died!*

The Roper survey shows mothers believe in immunization. But, unhappily, the majority do not appreciate the importance of having their children *immunized during infancy* and *reimmunized at proper intervals* to keep this immunity effective. All too many mothers say they would not have their children inoculated until an epidemic arose—or until their children were exposed to the disease.

To postpone calling your physician until there is an epidemic or they've been exposed is extremely dangerous. Remember, your unprotected child may be one of the first unfortunate thousands stricken before it is recognized that an epidemic prevails!

☆

How recently have you given your physician a chance to advise you about immunization?

Many mothers report they will have their children immunized when advised to do so by their physician. In this war crisis with its influx of refugees . . . mass movements of the population . . . crowded defense areas —there is no more important a time to consult your physician than *right now!*

*Elmo Roper, national authority on public opinion sampling, conducts the *Fortune* survey. In his presidential surveys he forecast the election of 1936 within 1% and the election of 1940 within ½ of 1%.

ARE YOU SURE YOUR CHILD IS PROTECTED AGAINST SMALLPOX AND DIPHTHERIA?

The following statements are broken down according to child age groups. Unless you can say "Yes" to those applying to *your* children, you should *immediately* take your children to your physician.

FOR INFANTS . . .

I had my child first vaccinated against smallpox between 3 and 12 months of age—or at least before the age of 3 years. Yes ☐ No ☐

I had my child given an initial inoculation against diphtheria between 9 and 18 months. Yes ☐ No ☐

FOR CHILDREN STARTING SCHOOL . . .

I had my child revaccinated against smallpox before going to school or at 6 years of age. Yes ☐ No ☐

At 6 years I had my child given a Schick Test to indicate susceptibility to diphtheria. Yes ☐ No ☐

FOR CHILDREN 12 AND OVER . . .

I again had my child revaccinated against smallpox at the age of 12 years. Yes ☐ No ☐

At 12 years I had my child given a second Schick Test to indicate susceptibility to diphtheria. Yes ☐ No ☐

When either of these Schick Tests showed susceptibility, I had my child reinoculated against diphtheria. Yes ☐ No ☐

against SMALLPOX and DIPHTHERIA *by May 1st!*

Many physicians are making an Immunization Record *available to their patients*

An Immunization Record Card, when properly filled out by your physician, will materially aid you who want to give your children the benefits of complete immunization protection. A card for each member of the family will tell what diseases each has been immunized against and *when* and *what* reimmunization will be necessary.

See your physician for these cards *today!*

An Immunization Record Card is supplied to the medical profession by Sharp & Dohme, Philadelphia, Pa., makers of Pharmaceuticals and Mulford Biologicals, as part of their endeavor to aid in the prevention of communicable diseases.

By GEORGE M. LOTT

FEEDING PROBLEMS

Feeding habits formed in infancy may profoundly affect the child's behavior in later years. The importance of proper early training in feeding and associated habits is explained in the first of Dr. Lott's two articles on "Feeding Problems."

PARENTHOOD is without doubt the most important calling today. Child care and training, with the molding of character into mature self reliant adulthood, may be the hope of this troubled world. Only a stable, well knit character can stand up under reverses and disappointments—or for that matter too much success and prosperity. The character of our rising generation therefore may hold the key to the future of America. The importance of parenthood cannot be overestimated.

INFLUENCE OF EARLY FEEDING HABITS

One of the most important problems facing mothers and fathers is the training of infants. Character development begins in infancy. Early feeding habits tend to have a profound influence on the child. At birth we have certain potentialities, which are determined by heredity. Contact with the outside world furnishes the stimuli which modify the physical, intellectual and emotional elements of growth. All combine to influence the form not only of our physical body but also of the various characteristics which differentiate us from others.

The newborn infant seems totally helpless. However, it can suck or nurse, make vocal noises, stir about and eliminate. Naturally these powers, limited as they are, assume great importance to the baby. Mothers soon learn that they are dealing with a personality. They can coax but they cannot make their child nurse, stop crying, or eliminate. It does not take long for the offspring to realize that these abilities can be turned into powerful weapons to more or less control a situation. When they want more attention they can cry or refuse to nurse. When they want to irritate their caretaker they can empty their bowel or bladder. The more anxious or worrisome the mother the more potent these functions become. Even casual observation reveals that infants express themselves without inhibition. They even enjoy the sense of power which enables them to upset those about them. Here are the first clues to the importance of handling feeding calmly and diplomatically.

NATURE OF FEEDING PROBLEMS

What do we mean by feeding problems? They include mild manifestations such as occasional loss of appetite, special dislikes and finickiness. The liking of certain foods and the practical exclusion of other articles in diet are called food fads. Dawdling and picking are annoy-

ances within the experience of any family. If the condition becomes frequent or periodic, food refusal occurs. Easily upset stomachs, vomiting and chronic constipation may appear. Almost invariably other behavior disturbances are associated with feeding problems. Restlessness, irritability, negativism, fearfulness, inadequate social contacts and either seclusive or excessively aggressive tendencies are the most common. The child with these handicaps is unhappy. Discontentment is prominent. If properly managed, the milder forms of this complaint pass away. If unwisely handled, the disturbance may become worse and tend to become prolonged or fixed.

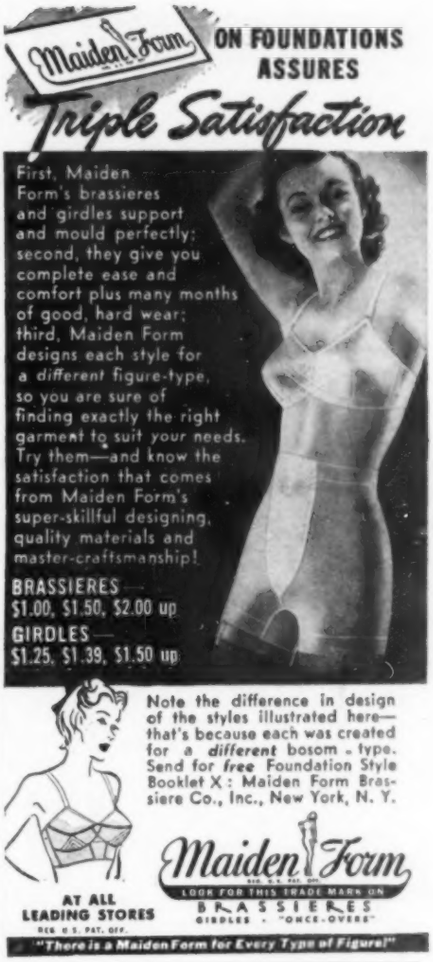
EFFECT ON NUTRITION

These troubles are upsetting to the home, have an effect on nutrition and, in association with other habit training, have a potent influence on personality behavior. Disturbed mothers are distressed and say, "Oh, Doctor, I can't get my child to eat." One abnormally overanxious, solicitous mother, after several years of difficulty, sought advice about her 6 year old boy, John. She was helped to restrain herself and finally was able for a time to ignore the feeding problem. When her anxiety became overpowering, she had to lock herself in her room. Daily encouragement was necessary to carry out this regime. On the fifth day the mother was hysterical and the father telephoned her report that the boy had eaten absolutely nothing for five days. Occasionally he drank some fluids. Investigation revealed no loss in weight, a juvenile attitude of gleefulness and an interesting report from a neighbor who lived several blocks away. This neighbor had been thinking of reporting the case to the Society for the Prevention of Cruelty to Children. John had been coming to her house to play with her son. He had seemed ravenously hungry and consumed large quantities of food when her children had their customary midafternoon lunch. John had even told her that his mother did not give him enough to eat. The main issue at stake was apparently a contest of wills between the mother and the child. John was a fairly normal boy, but very negativistic if coerced.

Prolonged, irregular, unbalanced food intake is bound to have an effect on nutrition. The child who wants all sweets and picks at the rest of his food frequently gets inadequate protein or vitamin intake. Lowered resistance to infection and poor weight gain result and may start off a train of chronic illnesses.

Child guidance clinic studies of feeding problems have revealed that the combined effects of exaggerated methods of habit training—that is, training in habits of eating, sleeping, and eliminating, have a profound influence on personality development. We have seen the negativism in the case of John and glimpsed some of the maternal influences which contributed to the boy's handicapping negativism.

Before we attempt to go further into the apparent effect on personality, a review of the normal characteristics of developmental phases will be helpful. We can then not only better understand the contributing causes of feeding problems, but also get leads as to their prevention and cure. Food hunger and the sucking action arise from the fundamental instinct of self preservation. Nursing and eating are largely reflex automatic motor activities normally present at birth. We can see from the outset, therefore, that in health little aid is required. The taking of nourishment is ordinarily charged with satisfying, pleasant emotions. In sickness, appetite normally fails. The nursing period lasts from six to nine months. Weaning from the breast or bottle is usually accompanied by some protest which can be safely disregarded. The taking of semisolid or solid food is a new experience requiring at first the help of the mother. The child can feed itself as soon as it is able to handle a cup and spoon, usually at from 12 to 18 months. Mary, age 15 months, had been attempting to use a spoon with occasional success. One day the mother was in a hurry and tried to resume spoon feeding. The youngster refused the food and had a temper. The mother was quite irritated but wisely put down the spoon and walked away. To her surprise Mary picked up the spoon and happily started to eat, spilling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Triple Satisfaction
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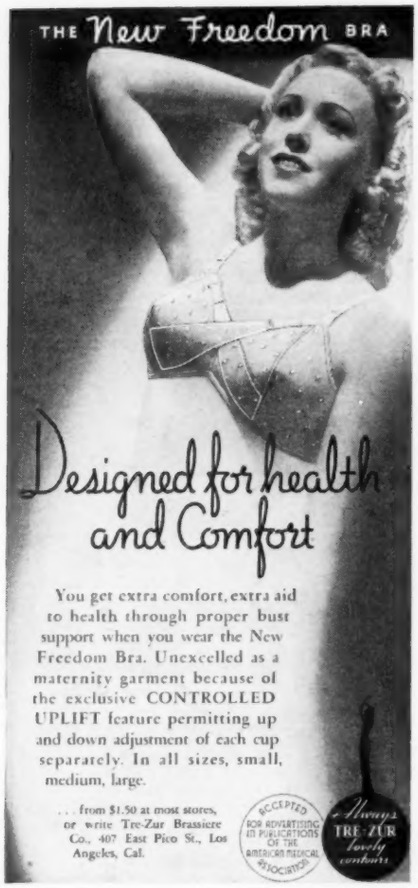
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very little. How many times we hear that phrase, "I want to do it myself!"

TOILET TRAINING INFLUENCE

It is important to note that toilet training occurs about this time, properly beginning about the ninth to the eleventh month. There is an expectation of usually attaining day control of the bladder at the age of 2 years or less. Night control of the bladder comes about half a year later. Full control of the bladder may be expected in the fourth year. How many mothers unwisely try to advance these attainments? Struggles over these functions between the mother and child are potent influences reinforcing those associated with simultaneous training in feeding, dressing and washing.

The ability of very little children to select the foods which meet their physiologic needs has been tested. A number of years ago Dr. Clara M. Davis of Chicago had the courage to test a group of newly weaned babies from 8 to 12 months of age. She allowed them to crawl about three times a day selecting their own food from all types displayed. A careful record was kept of what each child ate. Over a period of six months, it was found that during a given time each youngster selected a balanced diet. One meal might be made entirely of one food and the next meal of another. But it is the daily or weekly intake that counts. The children rejected indigestible foods. One baby, showing signs of active rickets, even cured itself! The appetite seemed to guide this infant to the foods containing vitamin D. If these findings are accepted, there is no reason why the undisturbed appetite preferences of a normal youngster cannot be followed within reason. This is, of course, providing that no feeding problems have already distorted their appetites. There is probably no real reason for forced feeding, save under conditions of severe illness.

With the above review of what is to be expected of the average child, we may proceed with the consideration of the possible effects of eating difficulties on the personality. In Benjamin Franklin's autobiography he speaks of some fellow travelers on long ocean voyages being made unhappy because they could not get their accustomed special foods. Those who were picky and had food fads tended to be particular and fussy about other things. He recommended that one should early acquire the habit of paying little attention to the food, but eating what was put before him.

Food refusal may have deep significance. To the child, early feeding satisfactions mean much in the development of a feeling of security. A feeling of security is one of the early corner stones of personality development. Without adequate early security we find that people do not develop really mature personalities. The psychologic equation of food and love was discovered by early investigators. Dr. Alga Lurie of Chicago says, "The child whose dependent needs are not adequately met cannot face growing up with any confidence or eager anticipation." When so frustrated, the child may not only revenge himself by food refusal but also seek to compel special efforts on the part of the mother. He compels her to acknowledge his dependence. The rejection of nourishment may mean to him a protection from growing up emotionally and from the dreaded assumption of more adult responsibility. If this process is continued and combined with other types of later mismanagement, various adult handicapping character inadequacies may appear. The later development of neurotic traits is facilitated if the child is made to feel excessively guilty over the hostility engendered during feeding difficulties. Food refusal therefore can be in part a form of self punishment. For example, a stomach easily upset by the emotions and even neurotic vomiting may result. One young boy frequently would regurgitate when upset. It seemed that he could almost vomit at will. He tried to be possessive of a mother who largely rejected him. When she displeased him he could throw up. The emptying of his stomach was a powerful weapon. It compelled his mother to wait on him. He also punished himself for his resentment to his mother.

LATER INFLUENCES

Far-reaching problems can develop. James was a 16 year old boy, the youngest of four children. Chronic, prolonged, frequent food refusal had occurred in reaction to abnormal oversolicitude and forced

feeding. His mother overevaluated not only feeding but also schooling and education, of which she had had very little. Later in adolescence the boy was much in conflict with his mother's anxieties. She wanted him to have the education she had not had. Without realizing it, James transferred his early food refusal to refusal to learn. He failed grades repeatedly although he had good intelligence and vainly tried to study. Some psychiatric treatment made him conscious of his underlying motives. It was quite clear that the mother suffered more than the boy did because of his school failure.

We have seen that infants are endowed with certain automatic functions at birth. Although helpless they can nurse, vocalize, move and eliminate. Further, they cannot at will really be forced to perform these acts. If not wisely managed it can utilize them as weapons and defenses, and lasting imprints on the personality are likely. We have had glimpses of ways in which they develop. We can now readily recognize the importance of feeding problems and associated potential effects on the personality. The mental hygiene aspects of the management of feeding cannot be overemphasized.

Spots on the Baby

(*Continued from page 333*)

means indicative of carelessness or failure to take the necessary steps in effecting prevention: the contagion may spread rapidly in spite of all efforts to control it. Fortunately, the disease in most cases is not serious and disappears within a few days when proper treatment is undertaken as soon as the eruptions are noticed. Several successful treatments have been developed in recent years; careful antiseptic methods to prevent the unnecessary spread of the infection to other parts of the infant's body is the first essential of all effective treatment.

The appearance of impetigo on a newborn baby is always a source of anxiety to the parents, and sometimes it is the occasion for angry criticism. Doctors and nurses are aware of the devotion felt by fathers and mothers for their babies; most doctors have children of their own, and their concern when their youngsters are sick is just like that of others! While it is understandable that anxious parents, looking for some one to blame, should find fault with the hospital, it is sometimes hard to be patient with such parents whose infant has developed lesions of impetigo when there is no other baby in the nursery from whom it could have been infected! When a baby is born with spots which resemble impetigo, some hospitals make a practice of showing it to the father immediately—to make certain that he understands the possibility of infection at birth and does not later place the responsibility on the hospital. When the grandmother is at hand it is well for her to be informed at once also; otherwise she may interpret the assurances of the father that the spots were present at birth as evidence of the lack of understanding of the mere male in matters pertaining to babies!

Like other humanly managed institutions, hospitals are not infallible, nor are chance infections in hospital patients impossible. Doctors and hospitals, working together, have made the birth of a baby a safe procedure for both mother and child, but complete protection from every possible risk is not yet practical. Perhaps some day a method of immunization may be found which will abolish this particular form of infection; when that time comes, physicians and hospitals everywhere will be quick to adopt it for the protection of their patients—just as they make available today the best methods and practices medical science has developed for the prevention and treatment of all diseases.

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HANDICAPPED

III. THE HARD OF HEARING CHILD. ***Valuable information to help parents recognize that a child has hearing difficulty and to guide them in the special training the child needs.*** **By RUTH E. BECKEY**

WHAT is to be done for the child who does not hear as well as his playmates? How are you to know that your child has difficulty in hearing? These are among the numerous questions which enter the parent's mind when he considers his child's hearing ability.

Not until one loses his hearing does he realize the importance of it in his daily life. With no hearing, speech cannot be heard and may therefore be learned only with great difficulty; noises cannot be heard, warning the person of danger; music and singing of birds cannot be heard. From the standpoint of social activity, the hard of hearing child lives somewhat isolated from his playmates.

Hearing is more closely related to speech than to any other function of the body. The main difference between deafness and the "hard of hearing" condition is in the methods used in speech acquisition. The hard of hearing child may be slow in learning to talk and may even develop defective speech sounds, but he does learn speech through hearing others talk, whereas the deaf child with no hearing at all has no conception of speech. Deaf children usually were without hearing before speech was learned or were deaf before they were born. They can think only in terms of pictures and sensations. As a result speech has to be learned by special methods taught by experts in the field.

All degrees of hard of hearing conditions exist. Some children have less than 15 per cent loss in both ears, and yet this small loss has been found sufficient to cause speech difficulty. One young boy came to the speech clinic at Ohio University with a speech disorder in articulation which made his speech unintelligible. Asked to read a simple story in the reader, he mumbled as though he knew how to read. However, he grunted only the vowel sounds, indicating few consonants. A hearing test was made, and his hearing loss was found to be only about 15 per cent, with greater deficiency in one ear. However, if one ear had been perfectly all right, speech could have been learned satisfactorily. He had simply been losing all the high-pitched sounds, which include almost all the consonants. With special help, the boy learned how to talk distinctly.

Several surveys have indicated that the hard of hearing form the largest single group of handicapped children in the country. It has been estimated by the American Society for the Hard of Hearing that one million children have some degree of auditory impairment. This estimate does not include the deaf, who have no hearing at all. The White House Conference found that about 300,000 of these children were handicapped severely enough to need lip-reading lessons. One of the largest surveys in the country recently was made in New York City, where more than 11 per cent of the children were found to need some special attention. Because hearing handicaps which involve only 15 to 25 per cent loss do not make the child appear abnormal, some of these children are not discovered as early as necessary for their proper guidance. Probably 5 or 6 per cent of the school population have hearing defects which are not receiving any attention.

The most help for the handicapped in the auditory field has been extended to the deaf and to those with more than 25 per cent hearing loss. It has always been more dramatic to help the ex-

CHILDREN

tremely handicapped—letting those who have slight difficulties struggle by themselves. As a result, very little has been done for the hard of hearing child. He often is sent to state institutions for the deaf, where he has to associate with those much worse than he is. He may be transferred to a day school where lip-reading is taught to the deaf. After a time, he returns to the regular school. In some of the larger cities, the school systems may have a teacher who is able to care for the hard of hearing and give speech correction. Fortunately, some states are enacting legislation which will take care of handicapped children, including the formerly neglected speech-defective and the hard of hearing child.

If the school is to follow a well organized program for the hard of hearing children, the following procedure should be followed: Group hearing tests should be given every year to discover the child who may develop some hearing deficiency, medical attention should be given to each child after any illness involving the head, lip-reading classes should be organized for those children with hearing losses of more than 25 per cent and speech correction should be provided for those who have defective speech sounds and monotonous tones. A large percentage of the hard of hearing children also have speech defects, since they have had trouble hearing all sounds correctly. This gives the child two handicaps to overcome.

Before the child goes to school, the parent may wish to know what procedure to follow to ascertain if the child needs help. In the first place, the observant parent may notice certain habits of the child which may indicate hearing difficulty.

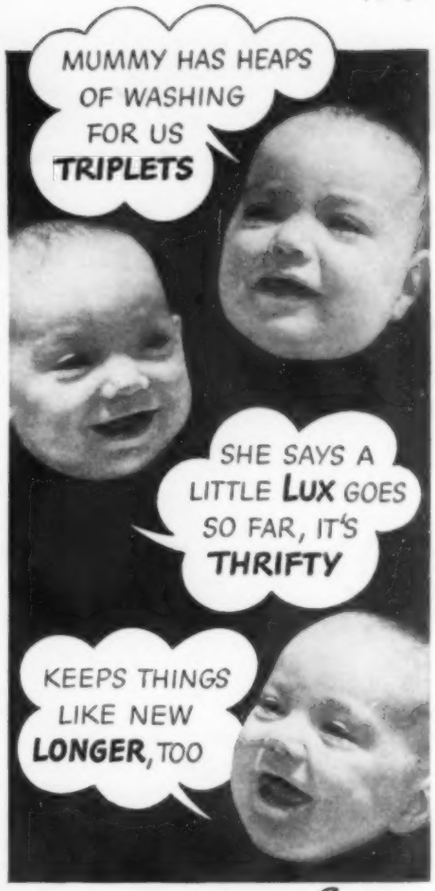
1. Does the child seem inattentive to what is being said to him?
2. Does he ever ask for words to be repeated?
3. Does he fail to answer questions?
4. Does he often misunderstand commands?
5. Does he breathe through his mouth?
6. Does he have any ear discharge?
7. Does he have a dull, monotonous or nasal tone of voice?
8. Does he have any retardation in his work at school?
9. Was he slow in learning to talk?
10. Does he have difficulty in pronouncing sounds?

If the parent has to answer "yes" to many of these questions, the child may be suffering from some hearing loss.

The next procedure to follow is to consult the family physician. Find out if the child has any physical defects which may be causing the hearing difficulty, such as diseased tonsils and adenoids, sinusitis or growths in the eustachian tube. The otologist can give a detailed examination of the throat, nose and ears to ascertain the presence of any growths or diseased conditions which may be causing the hearing impairment. In addition to the location of the possible cause of difficulty, the doctor should give an audiometric examination to discover the exact nature of the loss to the child.

The parent is interested in discovering the educational status of the child. Is his intelligence normal, or does he appear stupid as a result of his hearing deficiency? How does he behave in school? A hearing loss may cause the child to become a problem in behavior. In language tests, the hard of hearing child is slightly below normal in intelligence, but in the performance tests, he will usually appear normal. Lack of hearing causes the child to be slow in language development, and hence he is slow in the acquisition of intelligence.

As far as the hard of hearing child's personality or behavior is concerned, studies have revealed that he does not differ greatly from the normal, hearing child. It also has been found that the hard of hearing person usually rates lower in leadership and is much less aggressive than the normal child.



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However, the younger child usually reveals less emotional stability, assumes a dominant attitude (possibly to compensate for his inferior hearing), makes poorer adjustments in school and has a general feeling of unhappiness. Unless the child has suddenly become hard of hearing as a result of some disease or injury, the adjustment has been a gradual process. The child has become used to his trouble without fully realizing his handicapped condition. After complete diagnosis of the child's condition has been made, the parent is interested in doing something about it if the findings reveal a hearing loss of even as little as 15 per cent.

What to do? In the first place, the physician should be consulted and arrangements made for the correction of any organic defects which may be producing the hearing defect or the progressive deafening condition.

Educational reeducation follows the medical treatment. An attempt is made to help the child to use all the hearing that he has left. In many cases, the hard of hearing person is too lazy to make an effort to hear sounds. Make the ears hear what they can! Depending on the severity of the hearing loss, the child can be exposed to many types of sounds. For instance, he should listen to the radio, sound movies and concerts. Mother may read or tell stories to him. As much as possible, the child should be independent of lip-reading or hearing aids.

Almost every hard of hearing person needs some training in speech. He may have learned to talk at the normal time, but his hearing difficulty may be growing worse, and as it grows worse the speech is likely to become worse. In such a case, speech training should begin as early as possible in order to make use of the hearing that remains. The hard of hearing child often has difficulty in pronouncing all speech sounds correctly. His particular difficulties are usually with the high frequency sounds. Some of these particular sounds are *s, th, t, sh, ch, z, v.* Vowels are easier to hear than consonants. However, without the consonants, speech becomes a series of noises without meaning. This difficulty often occurs among hard of hearing children with high frequency deafness. The parent can help the child to improve his speech sounds by talking distinctly and closely enough so the child can actually hear the sounds. Certain mechanical devices have also been devised whereby the child may help himself to overcome his unpleasant voice defects.

Although the parent may know little or nothing about lip-reading, he can help the child to watch the lips of other people. By watching how the sounds are made, the child will soon learn how to "read" talking. Moreover, the child can be taught to understand speech by watching expressions and actions of people. What child needs to know the exact words being said when his mother bids some one good-bye at the door? The mother may say, "Good-bye,—oh, do come again!" By her very expression and manner, the child knows that his mother is happy to have seen the visitor and wants her to come again. After the child is old enough to go to school, the parent may find some special lip-training teacher to help her.

Of course, the parent is always interested in how to prevent hard of hearing difficulties and also how to prevent the condition from growing worse. Some of the following precautions have been found worth while for the preservation of hearing:

1. Keep the ear, throat, nose and mouth in good condition.

2. Have the ears checked after each infectious disease, such as scarlet fever, mumps and severe colds.

3. Avoid colds as much as possible, especially the cold that "hangs on."

4. Frequent ear tests (audiometric reports) will reveal early beginnings of hearing difficulty.

5. Child should be taught how to blow his nose properly.

6. Obvious ear difficulty should be treated by a physician.

How to treat the child at home? "Should I give my hard of hearing child more attention than the other children?" asks a patient mother. Just as with any other handicapped condition, too much solicitous attention on the part of the mother may make the child a problem to handle—he may take advantage of you, making the most of his handicapped condition. Certain considerations, however, should be made for the hard of hearing child without his realizing that you are treating him any differently from the others. For instance:

1. You may be considerate and patient with him at home. Do not be guilty of giving him favors that his brothers and sisters do not get. Help him to get adequate rest and quietness, as he needs more strength than the average child.

2. Leisure time activities, such as puppetry, ship building and airplane modeling, all help the child to find happy expression without depending too much on the strain of social conversation.

3. Economic and emotional security in the home always help to make the child feel more stable, even though he realizes that he is slightly handicapped.

4. He should realize that he will be able to do practically anything that any one else can do.

5. If the child has a severe hearing handicap, find the nearest school which can help you.

6. The American Society for the Hard of Hearing, or the Volta Bureau, Washington, D. C., will usually be glad to send literature and information to parents who need help for the hard of hearing child.

DEATHS FROM TYPHOID IN 1940

The number of deaths from typhoid in 1940 in seventy-eight cities for which data have been available since 1910 was the lowest on record, it is revealed in the Twenty-Ninth Annual Report of Typhoid in the Large Cities of the United States, published in *The Journal of the American Medical Association.* In the seventy-eight cities for which these data have been available since 1910, there were one hundred and seventy-two deaths in 1940 as compared with two hundred and thirty-two in 1939 and two hundred and fifty-seven in 1938. For the ninety-three cities included in the survey for the five years 1936-1940, the number of cities with no deaths from typhoid increased from eighteen in 1936 to forty-one in 1940. In the latter year there were eighteen cities with no typhoid deaths for at least two years.

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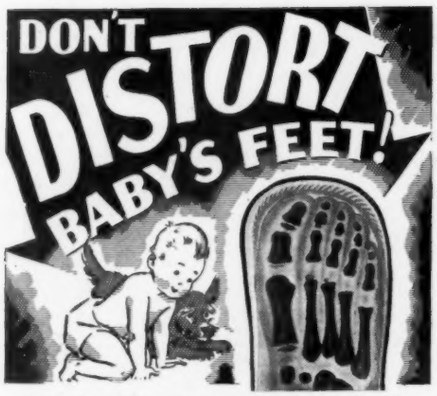

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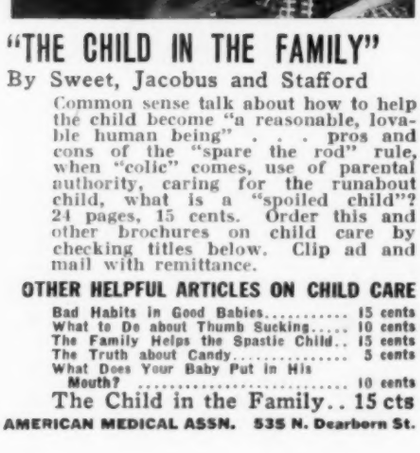

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The Story of Allergy

(*Continued from page 336*)

ing this type of stuffing was covered with an impervious material and certain pieces were discarded, his symptoms ceased. A return of symptoms, after a long period of freedom from attacks, was traced to a project being carried on in his school. The making of cloth was the school project undertaken; the cotton plant and bolls were included in the demonstration. Several asthmatic children, besides this patient, developed symptoms, so the teachers were persuaded to discontinue the project.

The treatment of food sensitivity consists of a meticulous removal from the diet of all foods which contain the offending substance. Egg, for example, is present in a large variety of prepared foods such as cakes, breads, ice cream, sherbets, mayonnaise, noodles, candies and sauces. It would be foolhardy, therefore, to expect to give relief to the egg-sensitive child by the elimination only of eggs as such. The same holds true with wheat, milk and other food substances which enter largely into the preparation of "made" dishes. Once the offending food is discovered and eliminated from the diet, a tolerance can be built by giving it in small amounts, which are gradually increased.

A remarkable physico-chemical fact is that a food which is harmful in a raw state may be tolerated when it is thoroughly cooked. Thus a child sensitive to egg may react to a coddled egg as well as a raw one, yet he may be able to eat a hard boiled egg. The milk-sensitive patient can tolerate milk boiled for half an hour, or evaporated milk, and the person who is allergic to wheat, meat or vegetables in like manner can tolerate these foods when thoroughly cooked. Doctors are endeavoring to establish an immunity, or tolerance, to pollens by inoculating hay fever patients at regular intervals throughout the year.

Unfortunately, it is not always so simple either to diagnose or to treat allergy; the knowledge is still incomplete, and the methods are crude. Yet such amazing strides have been made that one must not be discouraged. First, it must be realized that the approach described here is based on a vast amount of experimentation and clinical observation. It is highly unlikely that this will prove to be merely a theory. While these allergic conditions cannot be permanently cured, the suffering of many thousands has been alleviated. In most instances, patients can be treated at home and do not have to seek new environments. The results, it is believed, warrant the present method of treatment despite the fact that it may be long and tedious, requiring thought and careful planning on the part of the physician and the fullest cooperation on the part of the patient.

Pearl Harbor

(*Continued from page 358*)

they would have been fatal a few years ago. Before sulfa drugs were used, immediate operation would have been a necessity, but with the number of wounded increasing so rapidly this was an impossibility. When the patient arrived at the hospital base he was given morphine at once to relieve his suffering. The doctors were enthusiastic in their reports of the value of "morphine syrettes"—small plastic flasks with hypodermic needles containing single doses of morphine solutions. These "syrettes" have recently been introduced into naval medical use and have already been proved to be of great value. On December 7 there was no time for the preparation of hypodermic needles or hypodermic solutions, and without morphine the burned men would have suffered horribly.

After the men had been given morphine, their wounds were de-

brided. That is, every bit of dead or dying flesh that could give food to germs was cut away. Sulfanilamide powder was then dusted into the wound, and the incision was closed, usually without providing for drainage. In most cases these men are making excellent recoveries, men who a few years ago would have surely died. Later examinations showed an absence of pus in the wounds, mildness of postoperative reactions, and swift, clean healing. Infection, which in the first World War killed 80 per cent of the men with abdominal wounds, was almost totally absent at Pearl Harbor. There were no amputations because of infection, and there was an impressive lack of fever reactions.

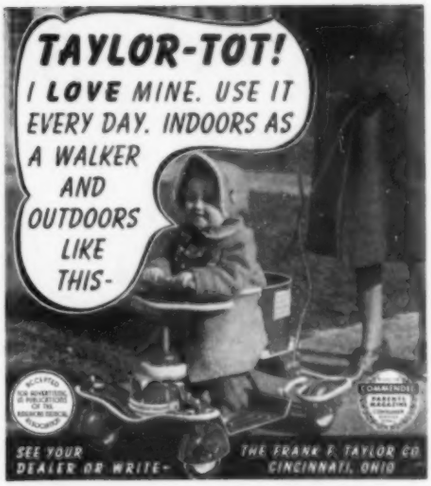
Even more important to the medical observers than the proved efficacy of the sulfa drugs was the triumphant use of the most recent of our war remedies—blood plasma—in the treatment of traumatic shock. Shock is a common and often fatal complication resulting from multiple war injuries: burns and wounds from shrapnel, splinters and falling masonry. Service doctors in the last year or so had paid much attention to reports from Great Britain that clearly indicated the need of a simple, readily available and efficient method of treating shock. It was demonstrated experimentally and clinically that the changes in physiology which occur in shock patients result primarily in the loss of circulating blood volume and that the decrease in blood volume results initially from a loss of plasma. The red blood cells remain in the blood vessels until the last stage of shock, when the inner lining of the smallest blood vessels is severely damaged by prolonged absence of oxygen. This loss, it has been ascertained, may be replaced promptly by the administration of plasma or serum. The replacement of fluid elevates the blood pressure and provides a vehicle for the circulation of red blood cells which is so necessary to overcome the oxygen deficiency of the tissues.

The Army and Navy both realized this necessity and began the development of blood plasma banks as early as 1940. A special apparatus for preparing dry plasma, modeled after the equipment used in drying milk, was constructed but later abandoned in favor of a closed system which proved more satisfactory. Liquid plasma that is frozen and stored at —20° F. is also used. This plasma is thawed at 98° F. just prior to shipment or when used locally. It is well established that plasma in the frozen state retains nearly all of its normal constituents, while dried plasma is more apt to lose a fairly large percentage of its complement and prothrombin as a result of the drying process. Rapid thawing at body temperature is not injurious to the plasma.

Because it would be so much simpler to package, store and transport, experimentation was continued in the preparation of dried plasma. After considerable research, it was found that normal liquid plasma should be frozen and dried from the frozen state under high vacuum at low temperature. Plasma dried in this manner retains most of its liable constituents. When properly packaged it can be safely stored for a period of at least five years. This product was given ample clinical trial under the supervision of members of the Army and Navy Medical Corps. Seventy-two packages of plasma dried in this manner were administered in hospitals of the Army and Navy, and the results were uniformly satisfactory.

After dried plasma was accepted for use in the armed services, experiments were made in the selection of a proper package. The package finally selected consists of two 400 cc. bottles stoppered with vaccine type rubber stoppers; intravenous equipment in sealed metal cans packaged in a sealed, waterproofed fiber board box. One bottle contains the dried plasma obtained from 300 cc. of citrated plasma and is sealed under 29 inches of vacuum. The other bottle contains 300 cc. of sterile, pyrogen-free distilled water sealed without vacuum. It is felt that the package provides an efficient method for administering plasma in the field under combat conditions and aboard ships during naval engagements.

The medical victory at Pearl Harbor was due to preparedness as well as to the heroic work of the men and women who attended the wounded. It was due in no less a degree to those men who work tirelessly in their laboratories seeking antidotes for the ravages of war.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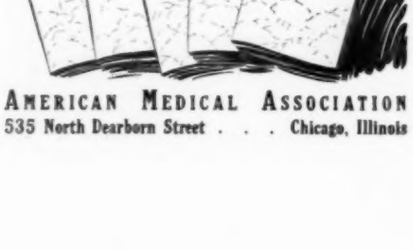

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Healthy Teeth Uncle Sam's

DID YOU KNOW that age for age, girls have more teeth missing, filled or decayed than boys? That a possible means of preventing tooth decay may be developed whereby children are given tiny amounts of the chemical element known as fluorine? Or that 95 per cent of all preschool children have dental defects and only 10 per cent are receiving attention?

These are some of the surprising new discoveries about dental care lately revealed by the United States Public Health Service with headquarters in Washington. While making known these facts to the general public, Uncle Sam offers a number of helpful hints to the nation's mothers and fathers.

Good health through good teeth is our government's aim. In a test survey the Health Service found that New Jersey's school children had lost over one million teeth which should have lasted them through life. If the children had sustained such a loss, it was quite clear that the adults were in a worse plight. As a result of bad teeth, they were unquestionably the victims of much unnecessary illness, entailing a waste of time and money. Here, plainly, was a situation demanding immediate action.

In order to improve this deplorable state of affairs, henceforth at fairly regular intervals symposiums on children's dentistry will be given throughout the country under the auspices of the Health Service, aided by local dental authorities. In this connection it is interesting to note that a short time ago Dr. Arthur H. Merritt, then president of the American Dental Association, announced that a bill had been introduced in Congress for a six year, $600,000 government-financed research program on dental ailments.

Exactly why is it that girls have more teeth missing, filled or decayed than boys? This is not simply because they are girls, according to Drs. Henry Klein and Carroll E. Palmer of the Public Health Service. It is rather because a girl's teeth are cut earlier in life than a boy's and have, therefore, been exposed longer at the same age to wear, tear and germs. In the last analysis, however, the girls show no greater susceptibility to dental decay than boys.

The possible means of preventing tooth decay by giving tiny amounts of fluorine to children was described recently before members of the American Academy of Pedi-

By **JAMES N. MILLER**

for Children

atrics. The element fluorine is one of the most active and destructive known, Dr. H. Trendly of the Health Service declared, and when present in only very small amounts, it causes tooth discolorations, or "mottled enamel," in children. In some areas, especially in the Middle West, it is often present in drinking water and a few millionths of 1 per cent is enough to cause the teeth of growing children to develop spots. However, Dr. Trendly says, children with spotted teeth seldom have cavities and toothache. It may be possible, he believes to find the proper concentration of fluorine in drinking water or some combination of fluorine and other substances which will prevent tooth decay and at the same time not cause tooth discolorations.

Mother and Dad are mostly to blame, points out the Public Health Service, for the fact that 95 per cent of preschool children have dental defects, with only 10 per cent receiving attention. It has also been estimated that, at 3 years of age. 85 per cent of the nation's youngsters suffer from dental decay and that a few years later this may reach 97 per cent. These figures are especially disturbing in view of the fact that a child who is slow or

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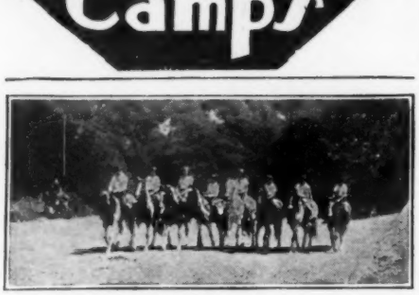

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The Magic Fluid (Diphtheria Antitoxin).—8 characters, with chorus, "king's subjects," etc. Set of 8 copies, 35 cents. Single copies, 10 cents each.

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backward in his school work is often found to be suffering from neglected teeth.

One reason for this nationwide problem is that frequently it is difficult, because of parental ignorance or lack of funds, to have preschool children brought under dental observation and care. As a result, when these children are ready for school, a tooth or gum disease may have progressed to a point where treatment is expensive and unsatisfactory from a prophylactic standpoint.

The important question in preventive dentistry today is how to reach children between 3 and 6 years of age. Probably, say federal health authorities, the problem can be solved in part by having every citizen assume the responsibility of seeing that his preschool child has the necessary preventive dental work. If parents fail to assume this responsibility, they may find to their chagrin that a child with an uncomfortable mouth has neither the physical energy nor the mental vigor to make satisfactory progress in the three R's.

In view of the lack of attention to the dental needs of the nation's children, it is not surprising that of 925,873 men who were found unfit for military duty in the first Selective Service examinations by reason of physical causes, the second highest of all causes of rejections was dental defects.

A high percentage of undernourished children show marked evidence of dental decay. The examination of a group of 270 children in this class under the supervision of the Health Service revealed 33 per cent with one to four cavities, 48 per cent with from four to eight; this same group showed some children with nine, ten and eleven cavities each.

The preservation of the pulp (often called "nerve") in the baby teeth is of the greatest importance. If this is not in normal condition the roots of the first set of teeth will fail to absorb, and many of the irregularities in the permanent teeth may be directly attributed to this cause. The loss of a temporary tooth before the proper time also may result in the eruption of the permanent tooth before thorough calcification has taken place, in which case it is more subject to decay.

All too frequently, little if any attention is paid to the temporary teeth, parents assuming that they will be replaced later by the permanent teeth, and that therefore attention to them is unnecessary. It is rare to find a child who has not had a toothache at some time. Even dentists pay little attention to these teeth, because young children are sometimes difficult to work with. This is unfortunate because, in reality, more can be done for a child by proper attention to the first set of teeth than by repairing the ravages of decay in the permanent teeth after they have taken their places in the regular manner.

Among 7,059 children examined in an investigation of mouth conditions by the Public Health Service, 1,822, or 25.8 per cent, were found to have lost one or more of the six year molars. Because this is the first permanent tooth to appear, erupting back of the last temporary tooth, it is frequently mistaken for a temporary tooth and neglected. This is nothing short of a calamity. Not only does the loss of this tooth mean the loss of masticating surface, but the six year molar also determines to a considerable extent the relative positions of the other permanent teeth, forming, in a manner, the keystone of the dental arch. With its loss, this arch collapses to a greater or lesser degree, markedly modifying the facial symmetry of the developing child. It is important to remember that in young children the first permanent molar is the sixth tooth counting from the center. Parents should be instructed to watch it carefully for beginning dental decay in order that steps may be taken in time for its preservation.

Few mothers and fathers realize that the percentage of children in need of dental attention is highest among those between 7 and 8 years of age. The neglect of the teeth in early life usually means an infected mouth with abscesses at the roots of the teeth which, unless cared for, persist in later life. Such abscesses may act as reservoirs of infectious material which may enter the blood stream and be carried to remote parts of the body, frequently causing rheumatism, heart disease, kidney trouble and other ailments which may materially shorten life. It has been said that one-fourth of all the people who die annually in

the United States have their life shortened from five to ten years by these so-called degenerative diseases.

According to Uncle Sam's health authorities, all teachers should be given at least a working knowledge of mouth hygiene and related subjects and instruction in the preventive measures that may be carried out by them without special equipment. They should be taught the value of mouth hygiene in preserving the child's health, reducing absences from school and lowering the number of children who repeat grades.

Many means are available for the instruction of teachers, such as lectures, moving picture films and instructive charts and pamphlets.

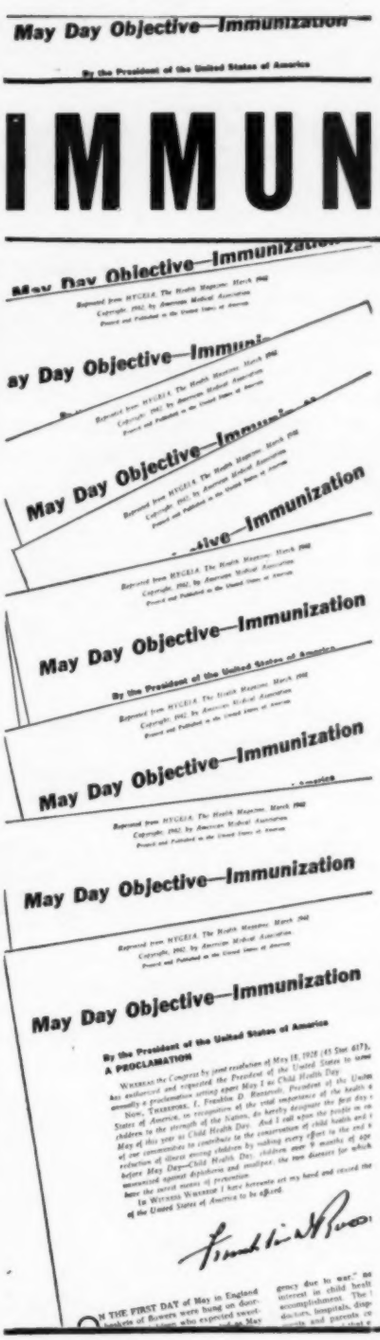
Fortunately for American youngsters, the accomplishments of modern dental science are countless. The young child with teeth coming in irregularly is easily fitted with a harness that will improve his appearance and serve as a foundation for good health for years to come. Junior is lucky, too, because teeth are not extracted these days at the drop of a hat, as they used to be when the x-ray plates gave them a bad reputation. There are many ways of saving them, in spite of the fact that often they are only "splinters." The modern facilities of the dentist challenge admiration, and the comparatively painless nature of his operations is the wonder of all those who suffered in the dental chair of yesterday.

The Tuberculin Test

(Continued from page 378)

of colorless liquid under the skin—that, the children find, is all there is to it, except for leaving their names.

The doctor works deftly, rapidly, but always has time for a word for each of the youngsters lined up before him. His slight gruffness of manner is belied by a twinkling eye and a friendly grin, and he seems to have a genius for gaining their confidence. In three days he comes back again for an inspection of the pricked places on their arms. Most of the children have no reactions at all; a few have slightly raised pink areas on their arms. The doctor looks at them and records what he finds. The work is continuing.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BOOKS ON HEALTH

The Universal Constant in Living

By F. Matthias Alexander. Cloth. Price, $2.50. New York: E. P. Dutton & Co., Inc., 1941.

Great Britain before the war was a hotbed of cultists who operated on the fringe of medicine. High class magazines carried advertisements of spine-stretchers and courses which would aid the reader to develop his memory, his judgment, or his physique. Testimonials from important people apparently were to be had easily. The present volume is a peculiar conglomeration of factual material and ideas written by one of these "fringe" healers, F. Matthias Alexander, whose training and technical equipment in medicine is nowhere described in the book, except where it is pointed out that he is not a healer but merely a teacher. He has, allegedly, " 'cured' men who stutter, suffer from heart trouble or asthma, or who are troubled by arthritis. . . ." The introduction is written by Prof. G. E. Coghill, a noted neurophysiologist, who points out that the author's theory is based on the fact that the whole person is integrated in the performance of particular functions, that muscle and joint synchronization is important as a factor in determining posture and that posture is important in determining muscular action.

One gets the idea that Alexander makes postural adjustments and that his patients feel better because of them. There is quite a connection here between osteopathic and chiropractic adjustments and Alexander's procedure, and in one chapter he discusses an osteopath's article to show that even the osteopath can learn something from his work. While the author quotes several British physicians in a complimentary vein and implies that the British War Office is using some of his technics in its physical training procedures for recruits, there is no specific evidence that his work is endorsed by careful medical investigators of the subject. However, Alexander does point out that several physicians have given him credit for success in treating patients, and he has a chapter dealing with a petition to the British Medical Journal to have a survey made of his work. Alexander's discussion of the results of this survey does not seem at all conclusive, although he cites a few successfully treated patients. Mr. Alexander apparently was operating a school which incorporated his tenets in Kent, England. This has now been transferred to Stow, Mass. He is now a resident of this country and it may well be possible to have a more careful study of his technics made by our researchers in behavior disorders and in physical therapy, so that if there are merits to this man's procedures, they will be made available for use by others than himself. Just what his procedures are does not come out very clearly in this book.

LOWELL S. SELLING, M.D.

Play for Convalescent Children in Hospitals and at Home

By Anne Marie Smith. Cloth. Price, $1.60. Pp. 133. New York: A. S. Barnes and Company, 1941.

Sick children in hospitals as well as at home require more than just skilled medical care for their complete recovery. Although medical attention and physical care are of first importance, recovery can be aided and invalid reactions such as self-pity avoided if the child's total personality is treated. It has been estimated that about 40 per cent of the child's hospital day is occupied by physical care. This book relates methods by which the Children's Memorial Hospital of Chicago employs play, the child's language, to occupy in a constructive way the other 60 per cent. Nurses and volunteer workers are given courses in play as a basic method for their understanding care of children; the book is intended primarily for those interested in the welfare of children. Although it deals with the hospitalized child, the values of play and group methods are applicable to children in homes, schools,

institutions and camps. It demonstrates what play has accomplished in alleviating children's fears of hospitals and increasing their confidence in physicians and nurses.

Many types of play are required for the many-sided needs of children in an institution. Special emphasis is placed on play activities requiring no material equipment and usable for persons of wide age ranges, individually or in groups. Definite plans and programs are offered. The author demonstrates how effective play activities are as therapy when organized as an integral part of the hospital care of children and as a fundamental part of the education of pediatric nurses. She also describes the reactions to play of the children, nurses, parents and visitors, especially its influence in promoting better cooperation and harmony. The child absorbed in play has neither time nor reason to become habituated to invalidism.

JOSEPH K. CALVIN, M.D.

Insect Pests

By Wm. Clunie Harvey, M.D., and Harry Hill. Cloth. Price, $4.25. Illustrated. Chemical Publishing Company, Inc., 1941.

Insects are wartime opportunists, taking advantage of every altered condition of life in the human family. This book, therefore, is timely. It describes the more common insect pests, such as the bedbug, the flea, the louse, the cockroach and others, giving the habits and methods of control for each one. The second part of the book gives practical information on the principles and practice of disinfestation. The authors describe in detail the methods of using the various gaseous and liquid materials for the disinfestation of homes, barracks and ships, with a chapter on foodstuffs. A chapter on human toxicology enumerates the precautions to be taken to prevent accidents and tells what should be done if they do occur.

THOMAS G. HULL, PH.D.

Body Mechanics in Health and Disease

By Joel E. Goldthwait, et al. Cloth. Price, $5. Pp. 316. Philadelphia: J. B. Lippincott Company, 1941.

Primarily this is a medical book. Secondarily it is one of the most informative books about the structure and functions of the human body as a machine that is anywhere available. The intelligent layman who suffers with bad posture, backache, muscle weakness or any such symptoms can find in this book a better understanding of the nature of his condition and what the doctors are able to do for it than in many another book written particularly for the general public.

M. F.

Nature Smiles in Verse

Compiled by Bernal R. Weimer. Copies of this book may be obtained by writing directly to Mr. Weimer, Bethany, West Virginia. Cloth. Price, $1.50. Pp. 99. Illustrated. 1940.

Many a rhymster has found in the functions of biology the very essence of humor. The Professor of Biology at Bethany College, West Virginia, has collected these contributions from a wide variety of sources and makes them available in a pleasant little volume which has been cleverly illustrated by Bobby Murray. Among the contributors to biological verse are such poets of note as B. L. T., Dorothy Aldis, Brete Harte and Arthur Guiterman. Perhaps the best of the lot is that magnificent couplet by Strickland Gillilan on "The Antiquity of Microbes." He merely says:

Adam
Had 'em

Many of the poems concern embryology, and the others pass from bacteria to vertebrates. Perhaps the author overlooked entirely the famous contributions of Ogden Nash. Certainly they deserve a place in any such collection.

M. F.

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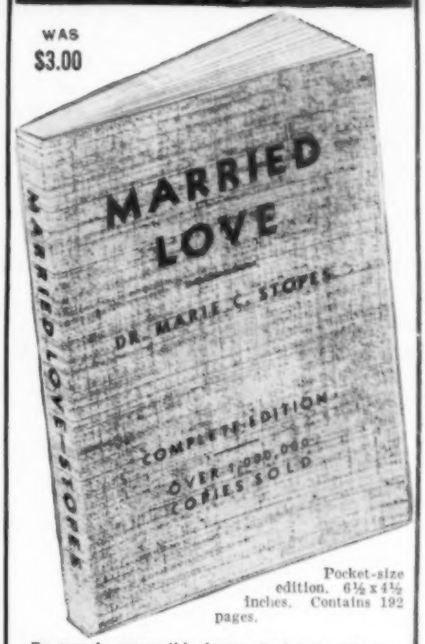

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Medical News

OF THE MONTH

Inadequate Dish Washing

Managers of public eating and drinking establishments should have their attention called to the glaring opportunities for the dissemination of infection due to inadequate methods of dish washing, *The Journal of the American Medical Association* declares in an editorial.

Discussing the findings of a recent investigation of fifty-five eating places in Providence, R. I., *The Journal* points out among other things that the period of exposing eating utensils to hot water or chemical disinfectants was extremely variable and in most instances far too short to insure effective disinfection. The use of chlorine compounds for the disinfection of beverage glasses can be an effective method providing relatively sterile glasses. However, most of the establishments using chlorine disinfection were guilty of gross misuse of this procedure.

Nutritional Status of Americans

"The evidence at our disposal warrants the conclusion that dietary inadequacies and malnutrition of varying degrees are of frequent occurrence in the United States and that the nutritional status of an appreciable part of the population can be distinctly improved," Norman Jolliffe, New York; James S. McLester, Birmingham, Ala., and H. C. Sherman, New York, declare in a paper on "The Prevalence of Malnutrition," published in *The Journal of the American Medical Association*. The three men add that "If optimal nutrition is sought, not mere adequacy, widespread improvement is possible."

They explain that "Recent estimates of the prevalence of malnutrition in the United States have varied so greatly that the Food and Nutrition Board of the National Research Council has assigned to us, as a subcommittee, the task of evaluating existing evidence on this question. Among the reasons for the widely varying estimates is the lack of criteria for the diagnosis of malnutrition. . . ."

" 'Nutritional failure' exists as soon as adequate amounts of an essential nutritional factor or factors fail to reach the desired state.

" 'Dietary inadequacy' means the failure to ingest an essential nutritional factor or factors in amounts sufficient to meet the existing requirements of the body.

" 'Nutritional inadequacy' means not only the failure to ingest, i. e. dietary inadequacy, but failure to absorb, to retain and to utilize an essential nutritional factor or factors in amounts sufficient to meet the existing requirements of the body.

" 'Malnutrition' is a bodily condition, detectable by any method of examination, caused by a nutritional inadequacy."

Advises Against Splinting Fractures of Elbow

Elimination of the use of splints, plaster casts or tight bandages for fractures of the elbow is advised by A. A. Neuwirth, Major, M. C., U. S. Army, Fort Totten, N. Y., in *The Journal of the American Medical Association* in an article in which he reports that the regained function of fractured elbows in 5 patients by this radical deviation from previously accepted methods of handling was 100 per cent.

"The fracture or fractures in the vicinity of the elbow joint were maintained in the functionally flexed position by a simple triangular bandage suspended from the neck," he explains. "Movement of the forearm and arm as well as of the elbow joint was encouraged as soon as possible, in keeping with the painful limits of the injury. . . . The nonfixation treatment permits close observation of the condition of the joint and early treatment of any untoward symptoms and complications. . . ."

Brain Waves as a Test of Blindness

Electroencephalography, a method of recording the electrical activity of the brain which is roughly analogous to the use of electrocardiography in studying the activity of the heart, is a reliable objective test of true as opposed to malingering or hysterical blindness, Frederick Lemere, Seattle, declares in a recent issue of *The Journal of the American Medical Association.*

He points out that because there never has been a reliable objective test for blindness heretofore, a physician suspecting hysterical blindness or malingering has not always been able to confirm his diagnosis and, conversely, he may feel confident that a patient is not a malingerer and yet be unable to prove genuine blindness.

"The value of a reliable objective test for blindness," the author says, "especially in compensation cases and in military medicine, is obvious."

He explains that the most prominent brain waves are the so-called alpha waves with an approximate rhythm of 8 per second. These waves appear on the electroencephalograph only with the eyes shut, as they arise almost entirely from the visual cortex and are broken up when the eyes are open and the person looks at an object. A uniform field of light or dark, or even a field containing blurred, indefinite outlines, usually does not interrupt the alpha rhythm, which is broken only by a definite visual pattern. If a blind or partially blind person attempts to look at an object such as a pencil and the alpha waves persist, one concludes that there is not enough vision left to distinguish objects or to be of practical value to the patient. On the other hand, if a supposedly blind person is asked to open his eyes and look around and the alpha waves stop, one can conclude that there is enough vision left to distinguish objects at least, and one can with reasonable safety make a diagnosis of malingering or hysterical blindness.